TECHNOLOGY DEPT.

MAY, 1950

Flow

OF MATERIALS THROUGH PROPER HANDLING AND PACKAGING METHODS

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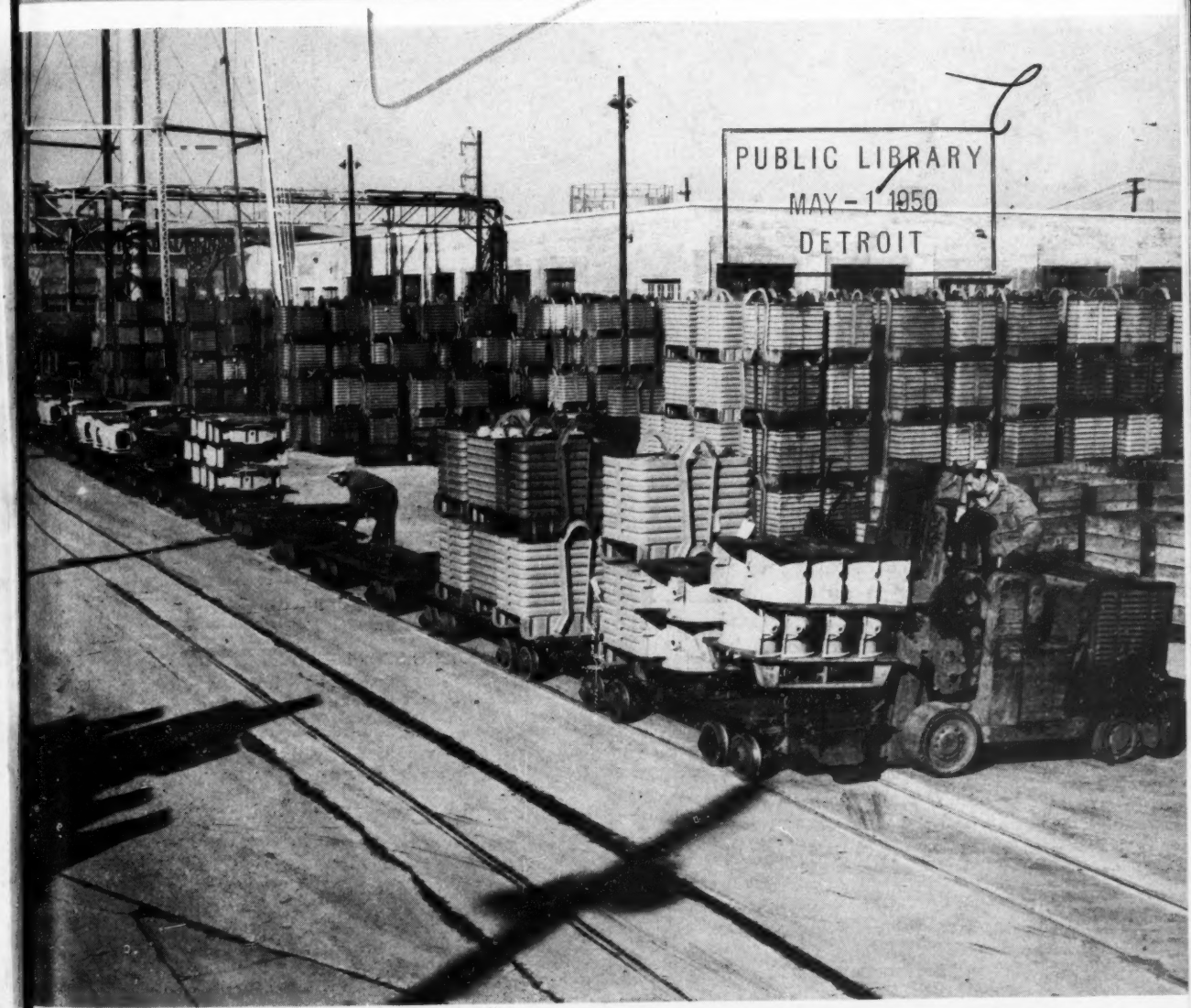
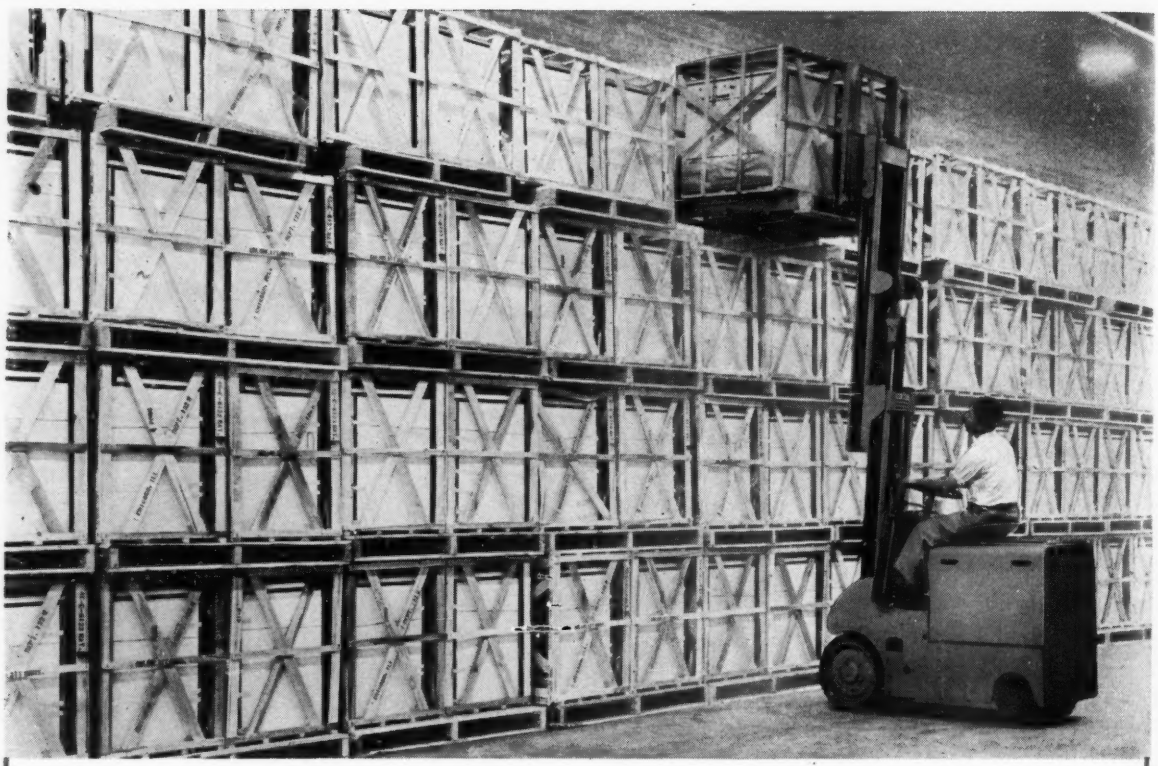


IN THIS ISSUE:

Chip Conveyor . . . R. R. Cross Tie "Carrier" . . . Packaging the Jeep . . . Caterpillar Co.'s Container System . . . Nine Reasons for Modernizing



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EXIDE-IRONCLAD BATTERY POWER

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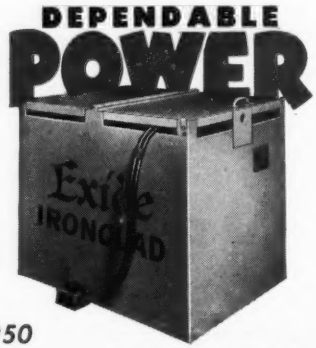
The combination of these superior characteristics make Exide-Ironclad Batteries your best power buy . . . *at any price.*

Write for more facts and FREE copy of Exide-Ironclad Topics. It contains latest developments in materials handling . . . shows actual case histories.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto



1888 . . . DEPENDABLE BATTERIES FOR 62 YEARS . . . 1950

"Exide-Ironclad" *Reg. Trade-mark U. S. Pat. Off.*

YOUR OWN ANSWERS Will Tell How You May *SAVE 50% to 75%* With Ingenious Material Handling Electric Trucks

Important manufacturers have found that in moving their material from receiving, through production and shipping, the "HIDDEN COSTS" of doing this operation *by hand,* have added *excessively* to the costs of their product . . . as much as 36% to every production dollar spent!

When these *hand-handling "hidden costs"* make way for *mechanized* handling . . . lifting, moving and stacking material with Automatic Electric Trucks, costs are cut many times as much as 50% to 75%. *One* operator, for instance, handles more tonnage than *three* manual workers . . . and does it with easy electric control.

Wouldn't you like to know whether these *"hidden costs"* can be eliminated in your plant . . . whether *you* can save, in man-hours, wages, faster production flow, and *free* storage space, the impressive sums so many Automatic Electric Truck users are saving?

Then *mail the coupon,* and we will send you the *free* Money-Saver CHECK CHART that enables you to put your finger on possible *"hidden costs"* of material handling. If you answer "No" to more than 4 of the 8 simple questions, you will readily understand how Automatic Electric Trucks can earn your business a *bonus return* of 50% to 75%, and amortize the investment in as little as 6 months. Mail coupon. No obligation.

Send Coupon for FREE BOOKLET—With the *Money-Saver* CHECK CHART, you get a free booklet, *"How to Make Your Material Handling Pay Dividends."* Gives authentic *case histories* of money saved on daily Automatic Electric Truck operation . . . *pictures* of how they would work for you, and how they can make more money on what you sell. Mail coupon.

Trade Automatic Mark
ELECTRIC TRUCKS
Lighten LIFE'S LOADS

Trade Automatic Mark 141 West 87th Street, Dept. E-5 Chicago 20, Illinois

Please send me, without obligation, your FREE *Money-Saver* CHECK CHART of 8 important Material Handling Questions, and Booklet: *"How to Make Your Material Handling Pay Dividends."*

Company Name.....

By..... *Position*.....

Street Address.....

City..... *Zone*..... *State*.....

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OPERATOR:
"So smooth and easy to handle, I don't get tired."

Trucks really go when powered with Gould "Thirty" batteries—go at full power months after ordinary batteries have begun to slow down.

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GOULD "THIRTY" BATTERY with NEW "Z" PLATES is "America's Finest Industrial Truck Battery"

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"Battery trucks do more work. Always ready, they position loads faster, lift and go at the same time."

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"Battery truck cost distribution is predictable; insurance is lower too."

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TRENTON 7, NEW JERSEY

Always Use Gould Automobile and Truck Batteries

Flow

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VOL. 5, NO. 8 • MAY, 1950

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"Aluminum boxes cut our costs in poultry processing"

FASTER freezing—easier handling—that's why a large, southern food chain uses boxes of Alcoa Aluminum for freezing poultry.

Ordinary boxes become waterlogged after cleaning, or take too long to chill. Aluminum's high thermal conductivity and low specific heat reduces freezing time. Aluminum's lightness cuts weight in half. Aluminum's friendliness to foods protects purity and appearance. Aluminum's corrosion resistance eliminates frequent maintenance and replacement.

Chances are excellent that aluminum tote boxes can improve your handling operations, too. Available in any form, these boxes are also non-magnetic, non-sparking, can be steam cleaned and degreased. Their low cost will surprise you.

For a list of manufacturers, mail the coupon below to: ALUMINUM COMPANY OF AMERICA, 1985E Gulf Building, Pittsburgh 19, Penna.

Light Weight
Fast Freezing
Friendly to Food

Gentlemen:

Please send a complete list of manufacturers who are making tote boxes of Alcoa Aluminum.

Name_____

Title_____

Company_____

Address_____

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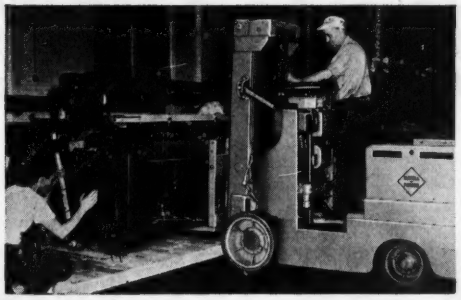
ALCOA

FIRST IN ALUMINUM



Lowering heavy loom, truck operator "spots" it just right over bolts on bottom of export case. Truck does job in minutes—manually it took much longer and was hazardous.

Precision

HANDLING BY ELWELL-PARKERS

Big loads—valuable loads—delicate loads—*all* can be handled with safety, speed and precision on easily handled, highly maneuverable Elwell-Parker trucks. Elwell-Parker's refined engineering, precision construction and precautions against wear make this possible. Simple finger-tip controls give operator complete mastery of the truck at all times. Inching action, plus a smooth, steady flow of power, also helps Elwell-Parkers perform exacting operations like the examples shown. For further evidence of the superiorities of Elwell-Parkers and their ability to cut *your* handling costs, call in your near-by man. The Elwell-Parker Electric Co., 4235 St. Clair Ave., Cleveland 3, O.

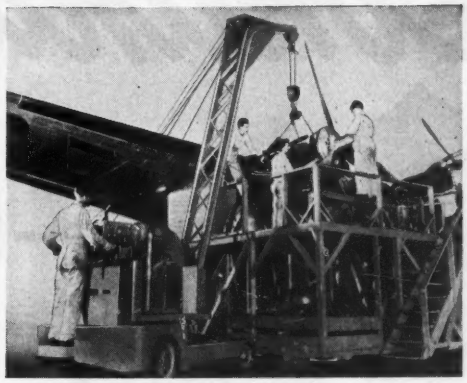
ELWELL-PARKER

POWER INDUSTRIAL TRUCKS

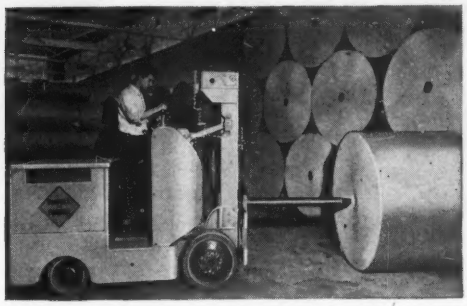
Established 1893

FREE BOOKLET on Scientific Materials Handling. Ask for "Industrial Logistics" and name your product.

Close-up of crane truck placing steam turbine rotor into the casing. Positioning within a fraction of an inch is achieved without damage to machinery.

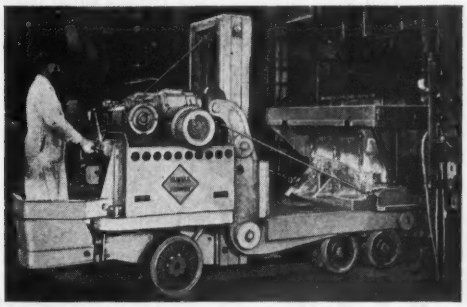


Special Elwell-Parker crane truck lowering a heavy bomber engine into place. Compared to previous methods, the job is done almost twice as fast, and with less manpower.



Picking up rolls on ram—an exacting job, and even more difficult when handling the high-tiered rolls—is readily performed by this E-P fork truck. ¼" difference in size of ram and hole.

Here's *PROOF* of Elwell-Parker's ease of handling. This amputee driver, with suitable attachment, is "as competent as any two-handed driver" spotting load on movable base.

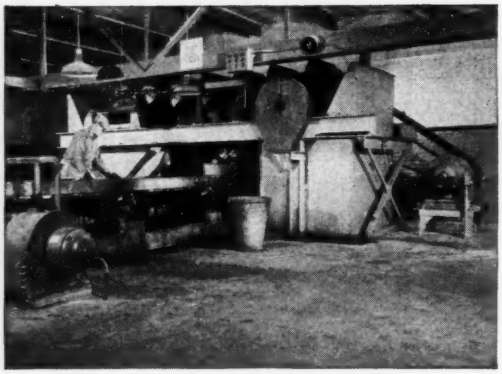


Placing 50,000 lbs. automotive dies on and off presses—formerly difficult and hazardous—is securely and swiftly done by precision-controlled E-P die handlers.

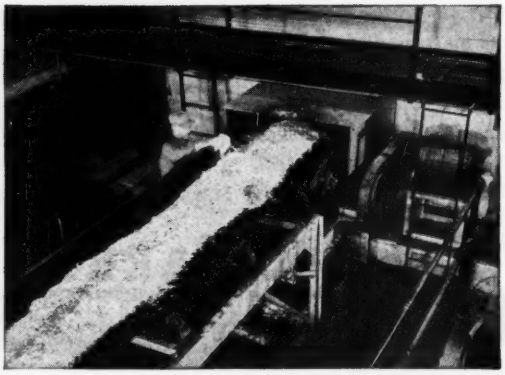
continuous flow

—a job for conveyors

1. This take-off conveyor in the American Crystal Sugar warehouse is driven by a 1-hp, totally-enclosed, non-ventilated, G-E Tri-Clad motor. The General Electric motor starting switch controlling the conveyor is located for easy operation by the attendant.



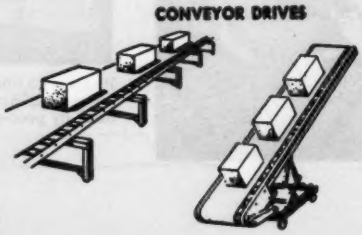
2. A bucket-type elevator transports beets from a wash house on the lower floor to the picking table shown here. A 15-hp, open (dripproof), G-E Tri-Clad motor chain-drives the elevator through a speed reducer while a 5-hp motor with speed reducer drives the beet-picking table.



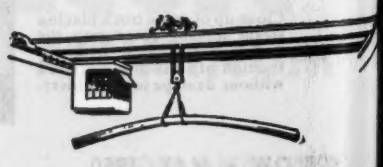
3. As they move along this belt conveyor, on their way from three G-E equipped slicing machines, sliced beets are continuously weighed before entering a continuous diffuser. The conveyor is chain-driven through a speed reducer by a Tri-Clad motor. The operator inspects the beets for quality.

Everything electrical for **MATERIALS HANDLING**

CONVEYOR DRIVES



CRANE DRIVES



at 2 tons a minute

POWERED by G.E.

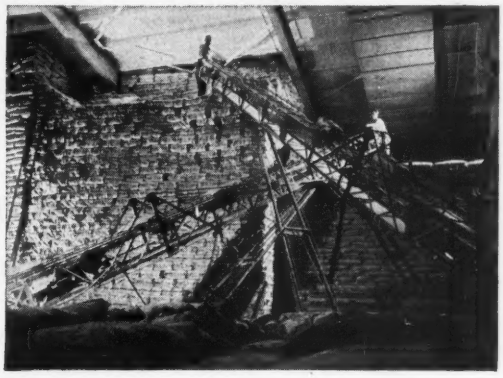
Modern Sugar Factory Relies on G-E Conveyor Drives To Maintain High Production

At the American Crystal Sugar Company's modern plant at Moorehead, Minnesota, up to 800,000 pounds of sugar and 300,000 pounds of dried beet pulp are produced in a 24-hour day. Setting records like this meant avoiding lengthy breakdowns in conveyor lines. Faced with this tough materials handling problem, American Crystal standardized on General Electric equipment.

The results? Here's a typical one. Listen to the plant operators: "Our G-E Tri-Clad motors get a lot of water splashed on them and take a surprisingly large amount of dripping—but still go right on operating. When necessary, it's a simple job to interchange motors between conveyors."

Whether you plan a simple conveyor installation or an integrated handling system, it will pay you to specify G-E motors and control. The nearest G-E office is listed in your local classified telephone directory. *Apparatus Dept., General Electric Co., Schenectady 5, N. Y.*

4. A screw conveyor, 24 inches wide and 70 feet long, carries residue beet pulp from the diffuser to presses at 6000 cubic feet per hour (40 pounds per cubic foot). It is driven by a 20-hp, open, Tri-Clad motor. Tri-Clad dripproof-type construction makes the use of a special enclosure unnecessary.

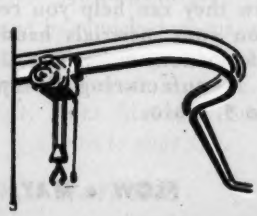


5. Tiering of bales in the warehouse is simplified by a special elevatoring system. Each elevator is equipped with two 3-hp, totally enclosed, non-ventilated, Tri-Clad motors. Use of this type of equipment makes possible the storage of up to 40,000,000 pounds of sugar and 5,000,000 pounds of plain pulp.

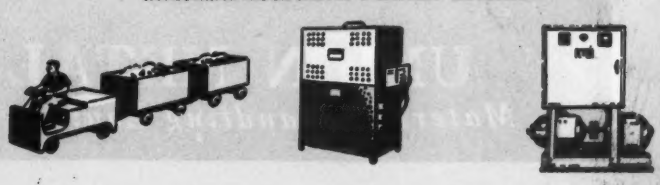
GENERAL ELECTRIC

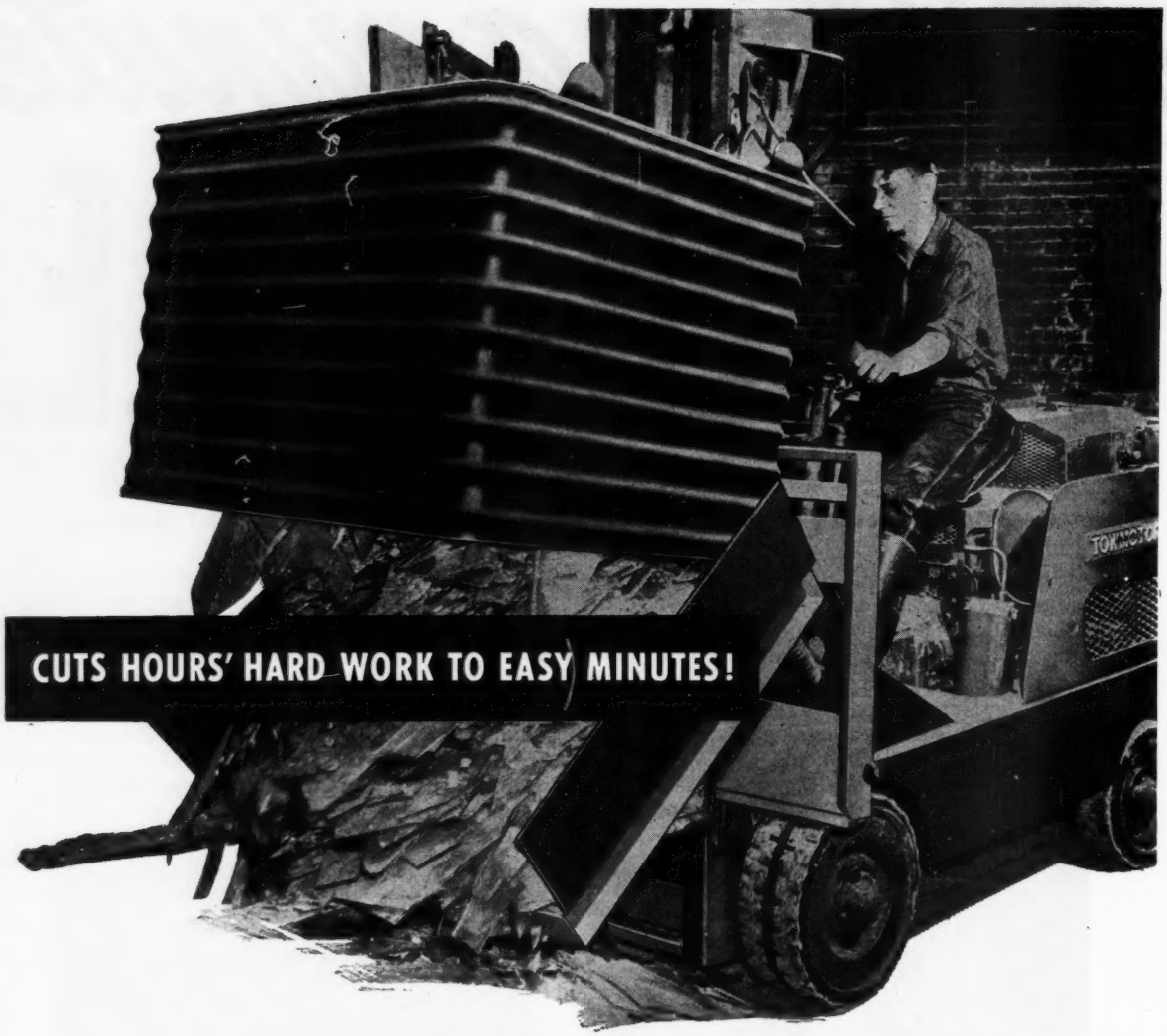
668-79

HOIST DRIVES



INDUSTRIAL TRUCK DRIVES & BATTERY CHARGERS





Union Metal Materials Handling Equipment reduces operating costs

"BACK-BREAKING" materials handling jobs are easy when Union Metal units go to work. And time and money are saved to boot!

Take the job pictured above, for example. It's in the plant of a large plate glass manufacturer. Loads of broken glass must be hauled regularly for disposal. Formerly, the broken pieces were tossed into wooden bins. When the bins were full, the contents were shovelled into wheelbarrows, hauled away and dumped through a grating. It was an expensive, time-consuming, arduous chore.

Union Metal engineers recommended a drop-bottom dump box for the job. It works perfectly! When the dump box is filled, it is picked up with a fork-truck, whisked to the grating, and dumped. The dump box gets back to work immediately. The whole operation is done now in minutes instead of hours . . . and much easier, too.

It's another typical example of how Union Metal boxes, skids, pallets and combinations reduce hours' work to minutes . . . and make important savings. Find out how they can help you reduce costs on your materials handling. For information, write The Union Metal Manufacturing Company, Canton 5, Ohio.

UNION METAL
Materials Handling Equipment

To FLOW:

Veneer Warehouse

Referring to your December 1949 issue, page nine, would appreciate receiving reports on handling plywood and veneer.—H. T. Breece, Jr., Vice President, Breece Veneer Co., Kenova, W. Va.

The report "One-Man Warehouse for Veneer" appeared in the October issue, 1948.—Ed.

To FLOW:

Techniques For Plastics

For the last two and one half years we have been busy setting up and installing new machines in our Plastic Department. We have also been at work setting up techniques and processes and engaged in perfecting our product which is a high quality line of plastic toilet seats and related articles. . . .

Our plans are these: We first intend to have an engineering firm, if we decide upon one, to come into the plant and in conjunction with our process men and engineers make a complete survey for conveyors, material handling equipment, etc. We then will study the survey and if it is to our liking we will have the particular company quote on the necessary conveyors, etc.

I am writing you in the hope that your close contact with the industry will enable you to recommend several concerns who do this type of work. I would appreciate anything you can do to help us in finding the right company to do the job for us.

I would like to thank you in advance for your cooperation and also tell you that I enjoy your magazine and have picked up many useful suggestions from the articles and advertisements in it.—E. McElligott, Plant Manager, Swedish

(Turn to page 12)

DEVELOPED by Goodyear Research, for use on industrial lift trucks, this Lug Tread tire has an extra thick tread built of specially toughened compounds that give it amazing resistance to bruising, body breaks, *any* kind of punishment.

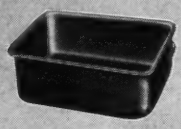
All that extra rubber means extra mileage and economy, of course. And you get extra smooth rolling, too, thanks to the way the alternately long and short lug bars are joined to a center rib. *Plus* super-traction!

You'll find Goodyear makes the most complete line of industrial tires of all types and sizes—every one specially developed to fill a particular type of materials-handling need. So always SPECIFY Goodyear industrial tires on your new equipment—BUY your replacements from your local Goodyear dealer.

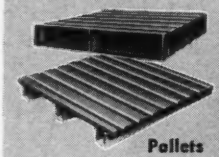
FREE TECHNICAL ENGINEERING ADVICE AND SERVICE

To help solve your particular industrial tire problem, Goodyear maintains a staff of fully-qualified technical experts. For their free recommendations, write: Industrial Tire Division, Goodyear, Akron 16, Ohio.

GOODYEAR
INDUSTRIAL TIRES



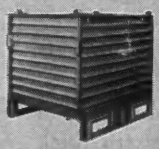
Tote Pans



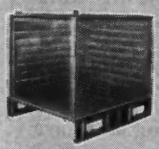
Pallets

Hopper Boxes

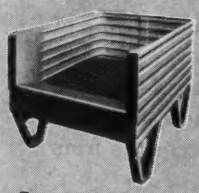
Dump Boxes



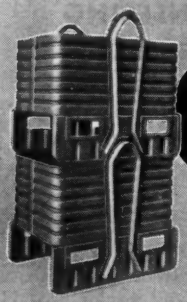
Collapsible Containers



Mesh Containers

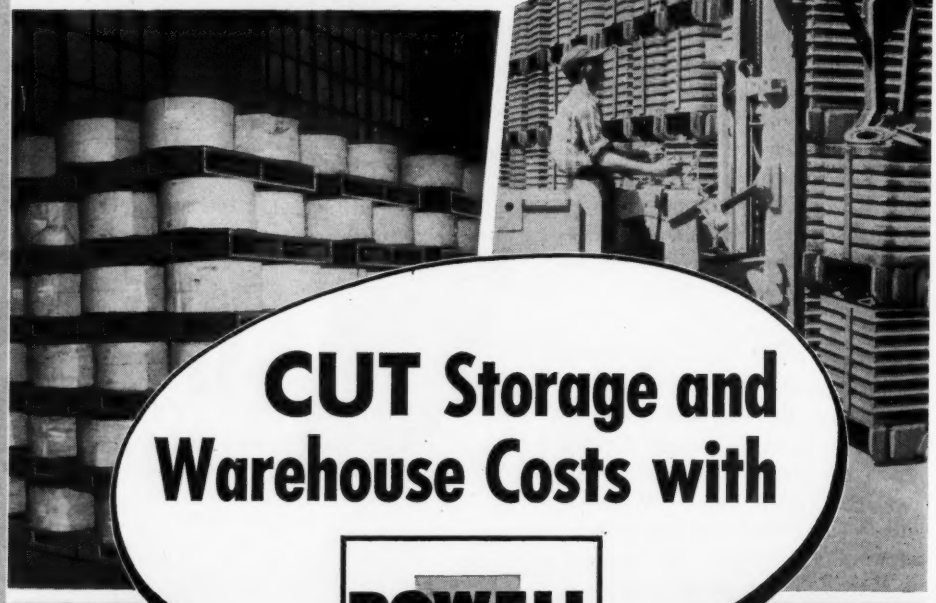


Foundry Boxes



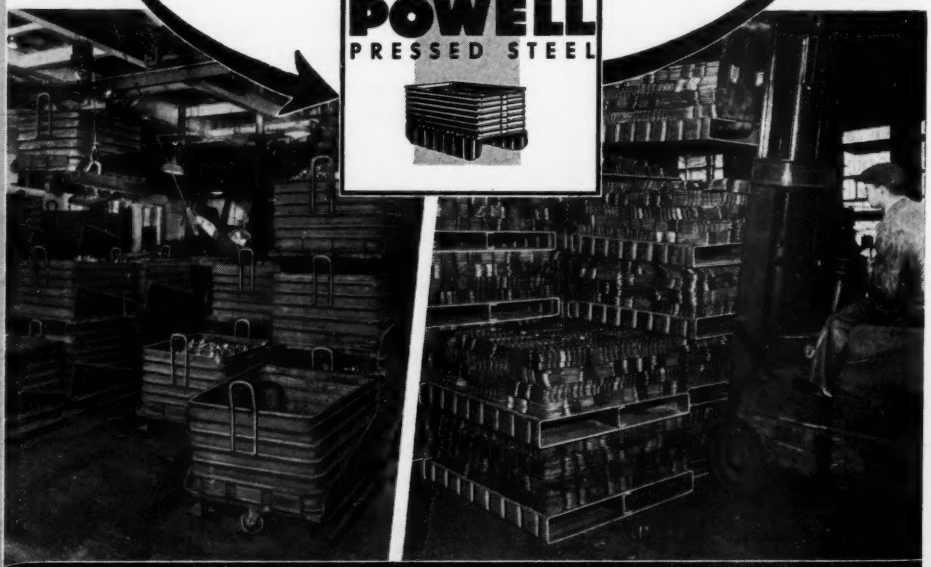
Tiering Boxes

Unnecessary handling, poor storage and warehouse techniques cut your profit margin, add nothing to your product value and endanger your competitive position.
In more than 30 years Powell engineers and designers have saved hundreds of manufacturers thousands of dollars by bringing efficiency into their handling and and storage operations. Be sure you are up-to-date. Check with Powell today.
There's absolutely no obligation.



CUT Storage and Warehouse Costs with

POWELL
PRESSED STEEL



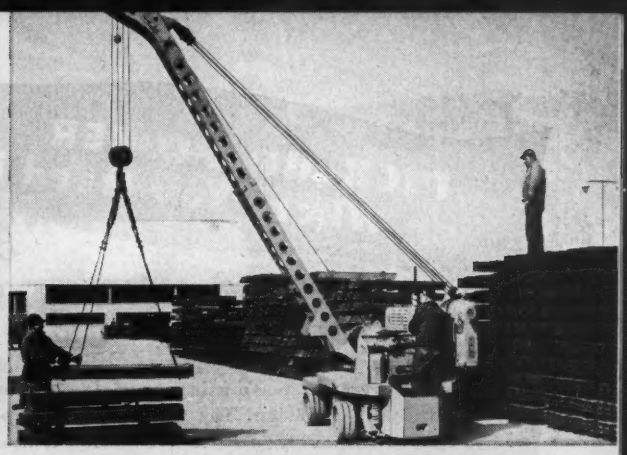
THE ONE COMPLETE LINE OF STANDARD AND SPECIAL MATERIALS HANDLING CONTAINERS

POWELL PRESSED STEEL COMPANY

Dept. No. 25

HUBBARD, OHIO

(IN GREATER YOUNGSTOWN)



YALE COST-CUTTERS

give "Caterpillar" a lift

Engines, tractors, motor graders, earth-moving equipment — Caterpillar Tractor Co. makes them all. Acres of components for these powerful machines fill its Peoria yards and storage areas. Everywhere you look material is on the move. For machining departments and assembly lines must be kept "well fed" to maintain output at a high level, economically.

To help assure top efficiency in storage and production operations, "Caterpillar" relies on Yale High Lift Fork Trucks and Crane Trucks. These versatile material handling tools safely lift, transport and stack tremendous tonnage per day. Large single units, sub-assemblies, and bins of small parts—all are handled with substantial savings in time, effort, and money.

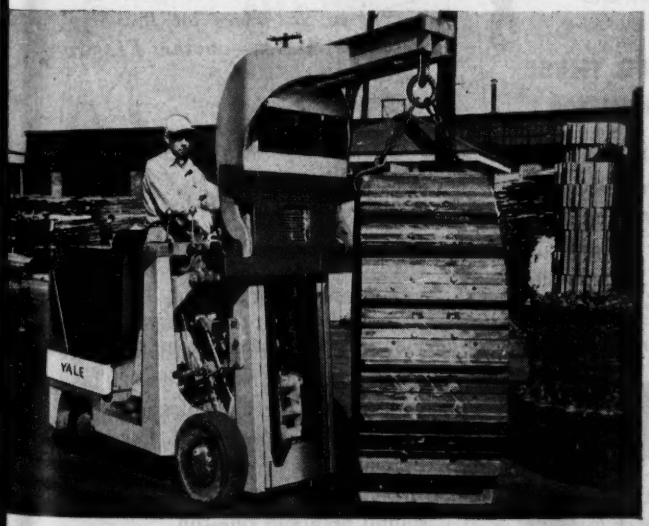
Yale Material Handling Machinery can go a long way in giving you the manufacturing economy so vital in today's competitive markets. Regardless of the size of your business, the Yale line of trucks, hoists and scales is so diversified and adaptable that selection for your particular needs is easy. Let our nearby representative guide you to greater handling efficiency and lower costs. Refer to your telephone book or write direct to Yale.

THE YALE & TOWNE MANUFACTURING CO.

Department K-33

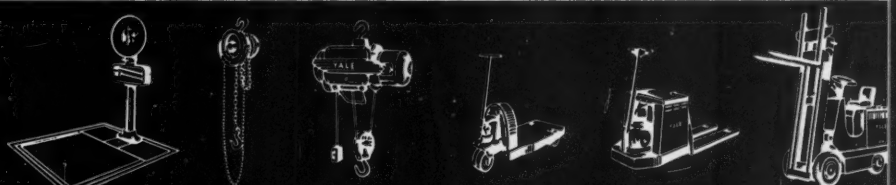
Roosevelt Boulevard Philadelphia 15, Pa.

K-24



YALE

TOOLS THAT KEEP INDUSTRY "ON THE MOVE"



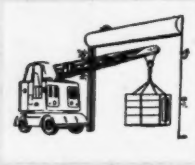
SCALES — Industrial • HOISTS — Hand and Electric • TRUCKS — Hand Lift · · · Electric · · · Gasoline · · · Diesel

PICK-UP POWER Where You Need it . . .

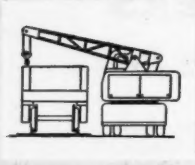
Plus

PUT DOWN POWER WHERE YOU WANT IT AND FULL CIRCLE FOLLOW-THROUGH!

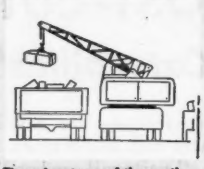
There's giant-strength and unrivalled manoeuverability in every Coles Crane . . . performing a variety of lifting and carrying operations with precision. The grouped finger-tip controls allow 100% concentration on operation. No other crane offers so many profitable advantages combined with such amazing versatility.



Low Headroom, made possible by cantilever type boom, combined with short wheel base, permits fast, safe operation in and out of buildings.

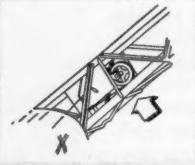


Exceptional manoeuverability; greater flexibility in loading and unloading gondola cars.

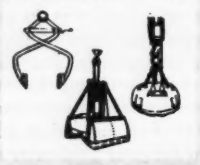


The advantage of the cantilever type boom mounted on high "A" frame, enables operator to work closer to loads and in narrow aisles.

Weather-proof, full-vision cab in a well-forward position for perfect observation and control, and safe and efficient material handling.



Safe-load indicator automatically cuts operation and warns operator of overload; protects equipment, operator, load and your investment.



Auxiliary attachments increase scope of usefulness.

Illustrated: Model 8502, 7½ ton capacity. Capacities from 1¾ to 23 tons.

CONSIDER THESE ECONOMIES:

- Low Initial Investment
- Low Operation Cost
- Reduced Maintenance Cost
- No Costly Repairs
- Minimum Yard Space

Write for full information and the name of your nearest dealer.

COLES CRANES, INC.
4307 South Paulina Street
Chicago 9, Illinois

COLES CRANES

LETTERS TO FLOW . . .

(Continued from page 9)

Crucible Steel Co., Detroit, Michigan.

FLOW appreciates Plant Manager McElligott's acknowledgment.—Ed.

To FLOW:

Friction Materials

In your February 1950 issue under the subject of "Servicing Brakes and Clutches" on material handling equipment, you published part No. 2 of this subject.

I am very much interested in obtaining a reprint of the previous Part No. 1 and would appreciate your furnishing same if available. We have been unable to locate our copy of the January issue, which has doubtless been taken by one of our engineers for study.

We have found FLOW very informative and hope you can furnish the above reprint, without too much inconvenience.—C. W. Daniels, District Manager, Harnischfeger Corporation, New York, N.Y.

This three-part article by Brake Specialist H. W. Overman appeared in the issues for January, February, March—another FLOW "first".—Ed.

To FLOW:

Handling In Hawaii

Lewers & Cooke, Limited, is interested in obtaining a Crane for sorting and piling lumber. The specifications are as follows:

(a) At least 180° radius boom with possible 360° radius. This boom as well as the hook should be able to be raised and lowered. Boom should be at least 12'.

(b) The capacity of the Crane should be about one ton.

(c) Crane should be mobile. Mobility is one of the biggest factors needed here.

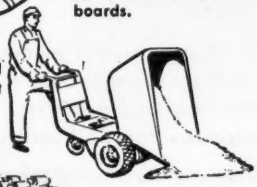
(Turn to page 19)

A 15-minute demonstration will show you how to

SAVE UP TO 20 MAN-HOURS A DAY

You can make these savings with the BELL Prime Mover . . . a new conception in materials handling, plant-maintenance equipment, and all around utility . . . a machine that combines the functions of a giant self-propelled wheelbarrow, a half-ton platform truck, and a powerful snow plow or scraper.

Bucket holds 10 cubic feet . . . 18 with sideboards.



Mechanically dumped . . . operates by foot pedal.

9-square-foot steel platform takes half-ton loads.

Climbs 20% grades fully loaded.

50-inch steel blade makes Prime Mover an efficient snow plow.

FEATURES:

- gear driven . . . no belts or chains
- fully enclosed engine protected against dirt and moisture
- clutch, engine, transmission all run in oil
- switch from bucket to platform without tools . . . in less than a minute
- turns in its own length (63½"); width 31½"
- 3-gallon tankful of fuel gives 8 hours continuous service

A product of THE PRIME-MOVER CO., Muscatine, Ia.

*PATENTS & T. M. REG. PENDING. COPYRIGHT, 1949

● Hundreds of plants now use one or more Bell Prime Movers to haul bulk materials to and from processing stations and to relieve workmen of heavy lifting and pushing. These plants report savings in payroll as high as $36.00 a day for each Prime Mover.

Not only do Prime Movers speed production and cut costs, they also contribute to morale. For example, a tannery purchased its Prime Mover simply to make a disagreeable and heavy job easier for workmen. Another plant bought a machine so as to utilize the services of an elderly worker no longer able to do heavy labor.

Wherever wheelbarrows or hand trucks are used in your plant, the Prime Mover should be carefully considered. Not only will it perform this work better and at lower cost, but it can be shifted to other duties . . . plowing snow, grading driveways, hauling construction materials or maintenance equipment. Its versatility and usefulness in and about a plant are virtually unlimited . . . but see this for yourself at a demonstration.

Simply sign the coupon and clip it to your letterhead. We'll put you in touch with a nearby distributor . . . a member of our nationwide sales and service organization.

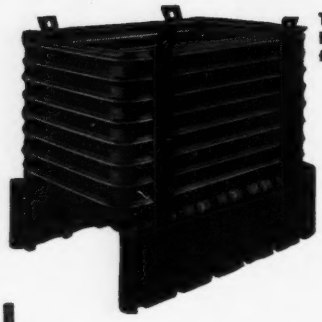
SEND COUPON NOW!

THE PRIME-MOVER CO., MUSCATINE, IOWA

Please send me facts on the Bell Prime Mover. Who is the nearest distributor?

Name_____ Company_____

Address_____ City, Zone & State_____



Type PB-120L Truscon Box and Platform with full length lifting lugs.

Type P-1. Truscon One Piece Steel Skid Platform.

HEADQUARTERS

FOR

Material Handling Equipment

The success of modern production methods depends upon the efficiency with which materials and products in various stages of fabrication can be handled.

Truscon's Pressed Steel Division—nationally known for the quality of its products and the dependability of its service—is fully equipped and prepared to handle your material handling equipment requirements. The Pressed Steel Division's central location, moreover, assures efficient service for all your needs. Write for free catalog describing the complete line of Truscon Steel Boxes and Steel Skids.

Write for illustrated catalog showing complete line of Truscon Steel Boxes and Skids.

Reduce Your Costs

TRUSCON STEEL COMPANY

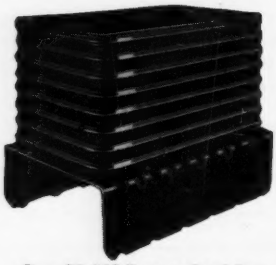
PRESSED STEEL DIVISION

6202 Truscon Ave. • Cleveland 4, O.

Subsidiary of Republic Steel Corp.

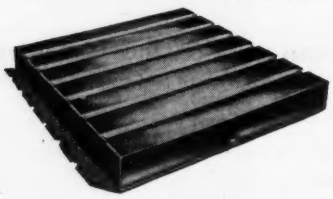
Type B-80C Truscon Box Equipped for Crane Handling.

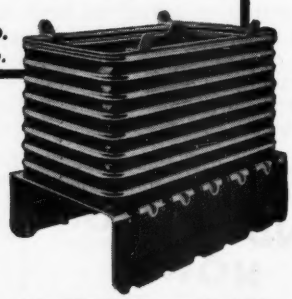
Type PB-650 Truscon Box and Platform with sliding End Door.



Type PB-120 Truscon Steel Box and Platform.

Truscon Double Face Steel Pallet.





Type PB-120T. Truscon Steel Box and Platform with Tiering Lugs.

A New PAYLOADER

model **HE** ½ yard

. . . with *ALL* the PAYLOADER Advantages

- Loads big trucks
- Four forward and four *faster* reverse speeds up to 23 mph.
- Separate, quick forward-reverse shift
- Full hydraulic control of bucket — lift, dump, close, lower
- Automatic quick tip-back of bucket
- Powerful hydraulic digging action
- Stability and maneuverability for fast, safe operation in close quarters
- Full visibility for the operator
- Large earthmover tires for maximum traction on and off pavements

Here is a new Hough PAYLOADER . . . a new size of PAYLOADER that sets new standards of performance, usefulness and durability for ½ yard tractor shovels. It has the many features that have made Payloaders first choice in industry for handling bulk materials.

It is an integral design of tractor and loader, completely Hough-built, with a balanced combination of pneumatic tire traction, flotation, operating speed, maneuverability and over-all usefulness . . . to dig, load, carry, stockpile, spread and windrow materials . . . to lift, lower, pull and push — indoors and outdoors . . . on hard surfaces or on loose ground.

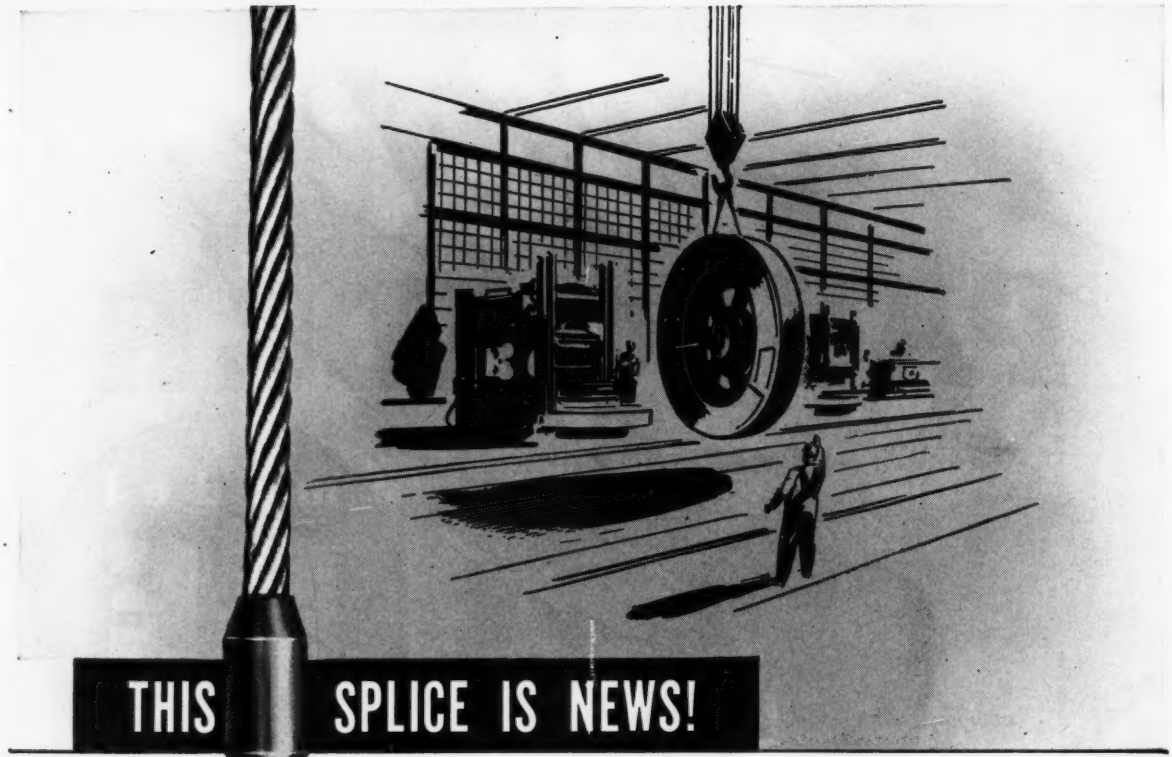
Your Hough Distributor is eager to put this brilliant performer through its paces for you. See him today or write The Frank G. Hough Co., 731 Sunnyside Avenue, Libertyville, Illinois.

Send for catalogs on the new ½ yard HE Payloader or any others — the 12 cu. ft. HA, the ¾ yd. HF, the 1¼ yd. HL, or the big 4 wheel drive 1½ yd. HM.

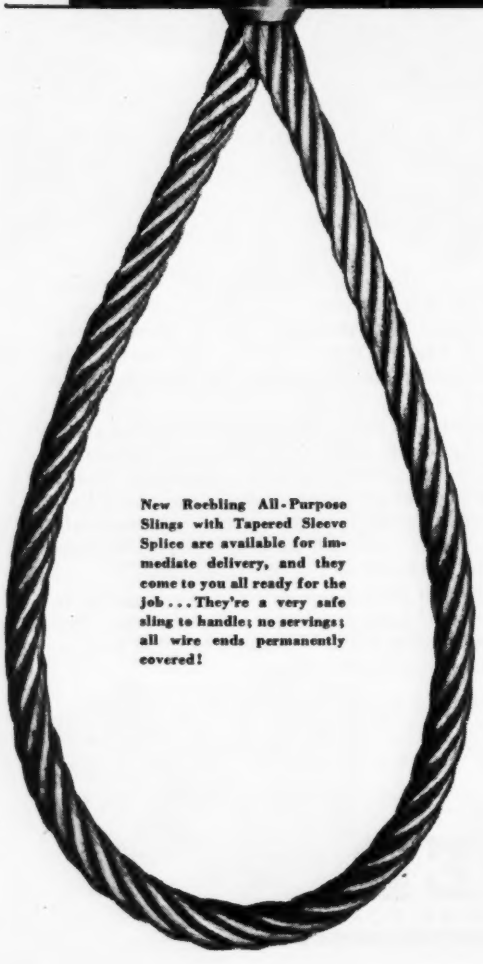
SAY "HUFF"

HOUGH PAYLOADER

Manufactured by THE FRANK G. HOUGH CO.



THIS SPLICE IS NEWS!



New Roebling All-Purpose Slings with Tapered Sleeve Splice are available for immediate delivery, and they come to you all ready for the job . . . They're a very safe sling to handle; no servings; all wire ends permanently covered!

New Roebling All-Purpose Sling with the Tapered Sleeve Splice

YOU GET NEW SAFETY at less cost with this unique splice. It's cheaper than ordinary tucked splices . . . saves the expense of "splicing your own." This remarkably simple rolled loop and tapered sleeve attachment develop the *full catalog strength* of the new Roebling All-Purpose Sling.

New Roebling All-Purpose Slings with the Tapered Sleeve Splice are made of Preformed "Blue Center" Steel Wire Rope with Independent Wire Rope Core. Their rolled loops are made by passing three strands and the core around the loop in one direction, and the other three strands in the opposite direction. Ends of all wires are permanently anchored in the compact, tapered sleeve.

Roebling All-Purpose Slings are the last word in toughness and dependability . . . offer full flexibility and handling ease. They are available in all standard lengths and sizes. Write for fully descriptive folder . . . and for the "Sling Data Book." In the full Roebling line there's a safe sling for top performance and dollar savings on every lifting job. ***THAT'S WHY***

Today it's Roebling!

JOHN A. ROEBLING'S SONS COMPANY, TRENTON 2, NEW JERSEY

ROEBLING *A CENTURY OF CONFIDENCE*

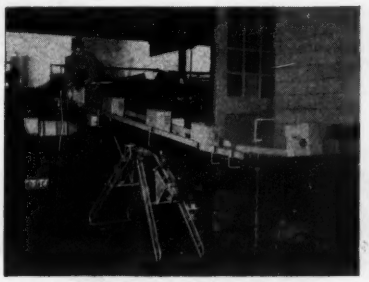
Atlanta, 934 Avon Ave. ★ *Boston,* 51 Sleeper St. ★ *Chicago,* 5525 W. Roosevelt Road ★ *Cincinnati,* 3253 Fredonia Ave. ★ *Cleveland,* 701 St. Clair Ave., N. E. ★ *Denver,* 4801 Jackson St. ★ *Houston,* 6216 Navigation Blvd. ★ *Los Angeles,* 216 S. Alameda St. ★ *New York,* 19 Rector St. ★ *Philadelphia,* 12 S. Twelfth St. ★ *Portland,* 1032 N. W. 14th Ave. ★ *San Francisco,* 1740 Seventeenth St. ★ *Seattle,* 900 First Ave. S.

BOTTLES, BAGS, BOXES . . . MOTORS, MUSHROOMS, MAGAZINES

Whatever your product . . . however you package it . . . you'll handle it faster and cheaper with Rapistan

Whether you need a short-length gravity conveyor for fast truck loading, or a complete, multifloor power and gravity flow system . . . you'll find the right Rapistan equipment to meet your needs exactly!

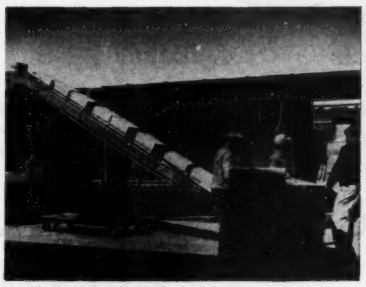
GRAVITY CONVEYORS — Rapid-Wheel and Rapid-Roller, for low cost package movement.



STEVEDORE, JR. — Fast, easy loading, unloading, stacking. Gas model available.

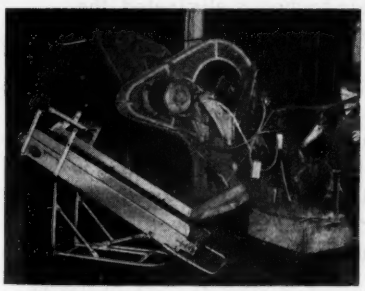
FLOOR-VEYOR, JR. — Floor to floor or horizontal movement of light products.

FLOOR-VEYOR — Floor to floor movement, heavy materials. Ideal for attic storage.



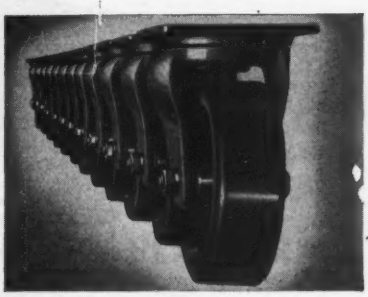
RAPID POWER BOOSTER — Heavy-duty loading, unloading; high, efficient stacking.

POWER-VEYOR — Fast, horizontal movement of all materials. Lengths to 150 ft.



PRESS-VEYOR — For stampings, small parts. Models also available for hot forgings.

HAND & PLATFORM TRUCKS — Sturdy, smooth-rolling. Long, continuous service.



RAPISTAN CASTERS — Steel-Forged and Flame-Hardened, or Cold-Forged.

Among people who know handling equipment, Rapistan ranks first. The reason? *Supreme dependability.* Rapistan products are designed to give trouble-free service long after most others have been replaced. For dependable uninterrupted flow of products — *through* packaging, storage and distribution — buy Rapistan! It's profitable.

All product names, "Rapistan", "Material Flow" — T. M.

RS

Representatives in Principal Cities

Rapistan

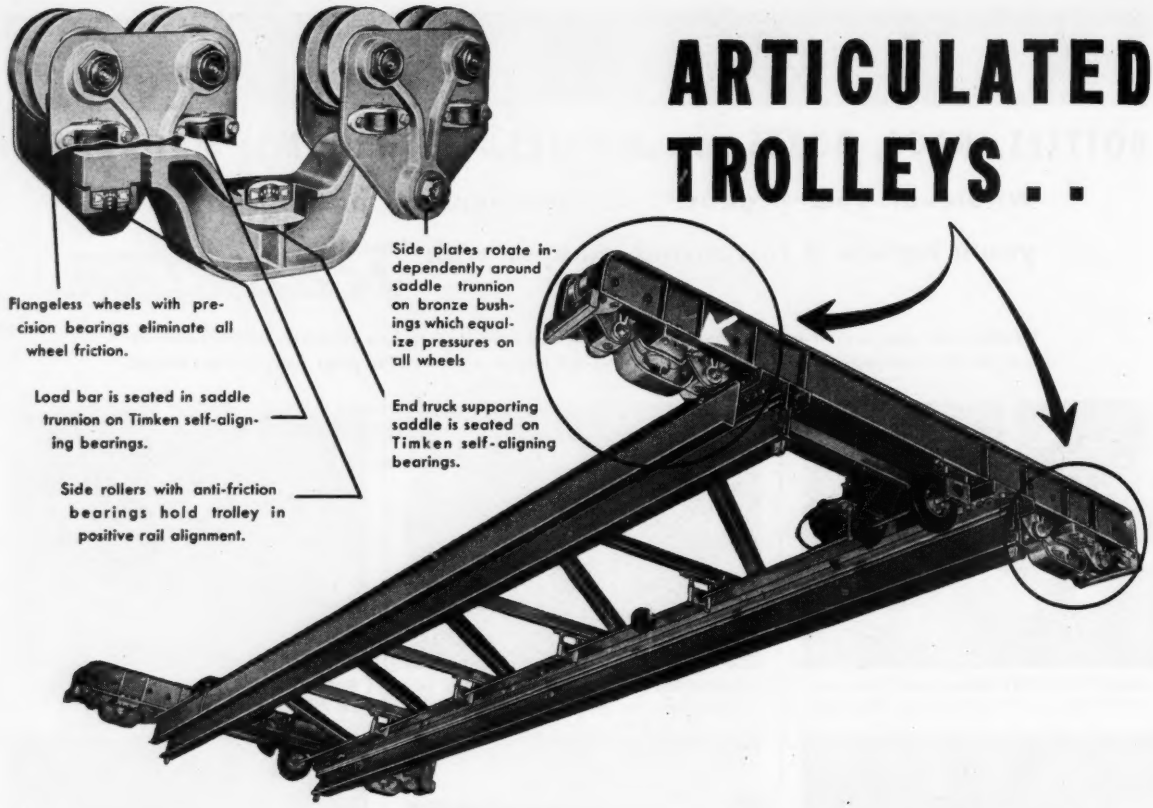
MATERIAL *flow* EQUIPMENT

CONVEYORS: Power or Gravity, Portable or Stationary
CASTERS • PLATFORM TRUCKS • HAND TRUCKS

Write for your free copy of "Rapistan Material Flow at Work".

The RAPIDS-STANDARD COMPANY, Inc. 195 Rapistan Bldg., Grand Rapids, Michigan

ARTICULATED TROLLEYS . .


Flangeless wheels with precision bearings eliminate all wheel friction.
Load bar is seated in saddle trunnion on Timken self-aligning bearings.
Side rollers with anti-friction bearings hold trolley in positive rail alignment.
Side plates rotate independently around saddle trunnion on bronze bushings which equalize pressures on all wheels
End truck supporting saddle is seated on Timken self-aligning bearings.

make possible High-Speed, Heavy-Service
AMERICAN MONORAIL CRANES

When each trolley wheel carries its share of the load in perfect alignment with the craneway tracks and all possible friction is eliminated, the result is perfectly articulated trolley travel.

Applied to American MonoRail Cranes, these articulated trolleys permit operating speeds of 500 feet per minute . . . constant service . . . handling loads up to 10 tons. And with this is offered all the flexibility of MonoRail design for *interlocking carrier service between and beyond the craneways.*

Let an American MonoRail Engineer explain all the advantages of these new cranes. Write for Bulletin MF-1 showing the development of American MonoRail Cranes for over-all plant service at low initial and operating costs.

THE AMERICAN MONORAIL COMPANY

13129 ATHENS AVENUE CLEVELAND 7, OHIO

LETTERS TO FLOW . . .

(Continued from page 12)

We will appreciate receiving any information regarding equipment which you feel would be suitable for the above purpose.—John W. Bustard, Operations Department, Lewers & Cooke, Limited, Honolulu 2, Hawaii.

Reader Bustard received a selection of references promptly—Ed.

To FLOW:

Not Quonset

In your December 1949 issue, you have an article entitled "Centralized Receiving for Supplies" dealing with curved roof warehouses. Throughout the article you refer to Quonset huts, but the photographs are not of a Quonset but rather of a laminated rafter building. As you probably know, the Quonset is all steel framing whereas laminated rafter buildings are of wood framing.

We will not go into the merits of one type over the other at this time, but would like to take this opportunity to say how much we like your magazine.—E. J. Featherstone, Laminated Rafter Department, United Co-Operatives of Ontario, Toronto, Ontario.

To FLOW:

DIRECTORY Goes Traveling

This will introduce ourselves as the New York office of Koopman & Co. who have offices in Amsterdam, The Netherlands, as well as in Batavia, The Netherlands East Indies.

We recently received a letter from our office in Batavia in which they mentioned that they noticed in your August issue, 1949, on page 27, an advertisement of a new issue of your DIRECTORY.

We would greatly appreciate your informing us by return mail what the contents of this DIRECTORY are, also the purpose of same and what the price is for each copy.—Herman C. Freyer, Koopman & Co., New York, N.Y.

MATERIALS HANDLING EQUIPMENT

Designed to do Specific jobs Better

Item No. C-467

Corrugated Steel STACKING BOX

A heavy duty corrugated all-steel welded stacking box with corrugated bottom. Built with a four way entrance. Crane lugs, stacking brackets are optional. Boxes are built to required specifications, including underneath clearance. Load capacity and color of paint desired, may also be specified.

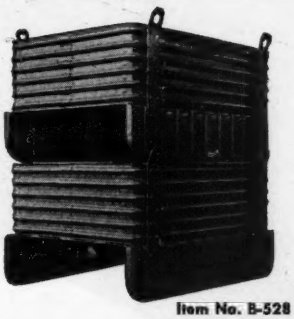
When Ordering:

always give "Item" number; this will help prevent error.

Item No. B-746

Corrugated BOX WITH LEGS

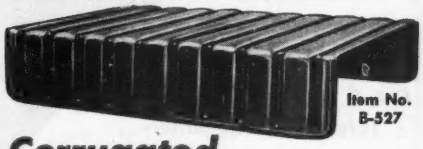
Ideal for moving or storing heavy metal parts; built of heavy corrugated steel; reinforced throughout with angle iron. Legs are designed to permit complete accessibility with fork or power lift truck. Made in any size or load capacity to meet buyer's specifications.



Item No. B-528

Corrugated Steel PLATFORM BOX

Heavy-duty all-steel construction. Can be tiered to any height. Easy to handle by lift truck. Built to any size. Specify dimensions, including underneath clearance, load capacity, quantity, and paint if desired. Also whether crane lugs, stacking brackets and channel runners are required.



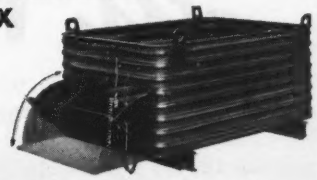
Item No. B-527

Corrugated STEEL PLATFORM

Sturdy heavy-gauge all-steel, built to withstand unusual load strain. Cold pressed from sheet of formed corrugated steel. Knee braces and bumper channel runners can be furnished. Use with any type lift truck. Custom built—when ordering give required dimensions, including underneath clearance.

Corrugated STEEL STACKING BOX with Hinged Door

Can be used on a steel stand. Door opens to any set angle by means of the chain, simplifying parts disposal by standing or sitting workmen. The door also eliminates the necessity of removing tiered boxes when it is desired to dispose of parts in boxes not at the top. Built to dimensions and load capacity specified by the customer, including underneath clearance. Crane lugs, stacking brackets, and color of paint desired may also be specified.



DESIGNED AND MANUFACTURED BY 849

Palmer-Shile Co.

16012 Fullerton Avenue, DETROIT 27, MICHIGAN

20%

ADDITIONAL K.W.H. CAPACITY

C & D FIVE-FOLD *Slyver-Clad*
Industrial Truck Battery

Catalog IT-515 Available On Request

-at NO *extra cost!*

C & D BATTERIES, INC.

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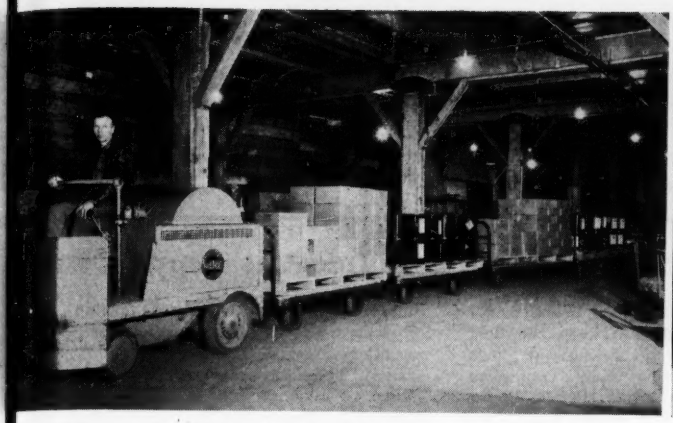


INDUSTRIAL TRACTOR hauls pallet loaded trailers from the sealing room to the elevator.

HAND-GUIDED tractor transfers trailers on and off elevator, shown at left.

9 REASONS FOR STUDYING YOUR HANDLING PROGRAM

J. A. HUTCHINSON,

Production Manager
Acme White Lead & Color Works,
Detroit, Michigan

THE Acme White Lead & Color Works, Detroit, is one of the country's largest paint manufacturers. The volume and number of types and sizes of containers require a well-organized system of warehousing, order picking and inter-departmental transportation.

This paint manufacturer offers nine good reasons for studying your handling operations—and then doing something about them.

1. The labor aiding machines and methods have resulted in a better than 25 percent increase in tonnage handled per man-hour.

2. A decrease in the dollars-and-cents cost per lb. shipped.

3. Labor economy, because individual handlings of cartons were reduced from five to two.

4. Higher operator morale and greater interest in the work are an outcome of the reduced physical effort.

5. Less exposure to the chance of injury to operators (which resulted from repeated lifting).

6. Only one-half of the former storage space required.

7. Faster flow of goods.

8. Faster order filling.

9. Easier and speedier inventory control.

Half of Storage Space Suffices

As recently as three years ago, the storage area for finished stock covered 14 floors. Hand stacking permitted only partial use of "air rights." Each case was handled as many as six times, and order selection was slow and laborious. Because of the vast amount of space required for finished goods storage, incoming raw materials were grouped in crowded quarters, and transportation in and out of these areas was difficult. Additional manufacturing space that was needed could not be found.

In the spring of 1948, our company introduced a fork-truck-pallet system. A 12-000 lb. freight elevator was installed as part of this modernization project and a 120 ft. long shipping dock was constructed. In addition to these physical facilities, a new bookkeeping and order record system was introduced.

Today, the storage of finished

goods is confined to only six floors —less than half the former square footage. The space on the eight additional floors that were formerly used amounts to a saving of 40,000 sq. ft. The areas freed are used for more effective storage of raw materials, and a part of them has been allocated for manufacturing expansion. The decrease of finished goods storage can be traced to faster flow from manufacturing to shipping (requiring less goods on hand), and utilization of vertical storage area.

Numerical Storage System

Finished goods are first sent to floating (or bulk) storage, then to order selection areas. Stock is taken to the order picking floor at night for use the following day. Since this floor is adjacent to the shipping room, no further interfloor transportation is necessary. Full-pallet-load orders are taken directly from reserve storage to shipping. However, such orders are in the minority.

FORK TRUCK delivers goods to outboard carrier. Few are shipped on pallets.

More than 1000 items are stocked on the order picking floor, and about 500 types and sizes of items are stocked in bins adjoining the shipping dock. These are less-than-case-lots and/or slow moving items, which are added to the orders just before they are shipped. This division of commodities has released space in the order picking area, where all goods are palletized.

Stock for order filling is arranged in numerical sequence for easy selection. After the new handling and storage system had been in operation for a time, a more efficient record system was introduced in the office. Items on customers' orders are now listed in the same numerical order in which the goods are stacked on the floor. According to Everette Baker, superintendent of shipping, the saving in time and effort as a result of the elimination of backtracking has been tremendous. And employee morale has been noticeably improved. The

(Turn to page 51)

Battery Charging Practices at Acme

SYSTEMATIC charging practices for industrial batteries keep the fleet in running order and the flow of goods moving on schedule. Such controlled practices are in effect at the Acme White Lead & Color Works for its two battery-powered fork trucks, riding-type tractors and two walkie-type tractors, which are operated for a period of 16 hours each day. The company made extensive tests to determine what methods would be the most economical and make the most effective use of charging equipment and spare batteries.

The main charging station is located adjacent to the shipping room. It consists of a three-way generator type charging unit (three batteries are charged simultaneously). The two fork trucks and the large tractor are serviced at this station. A single circuit rectifier for the hand-guided vehicles is located elsewhere and is described separately.

The plant operates from 8:00 a.m. until midnight. Batteries are used for eight-hour duty. At 3:45 p.m. the three large vehicles return to the charging station. The batteries are removed by a one-ton electric hoist and fully charged ones put in their place. The other batteries are then put on charge. In 10 minutes the vehicles are on their way again.

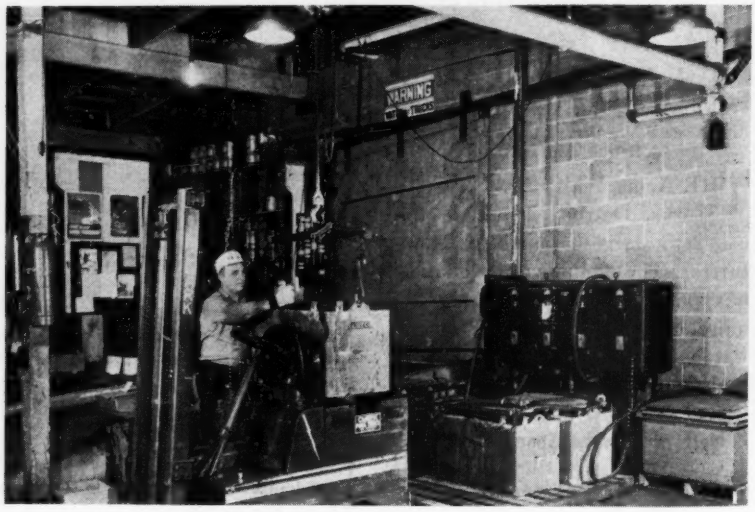
At midnight, at the end of the second shift, the fork trucks and tractor are returned to the station and the batteries charged in the vehicles. Since charging requires exactly eight hours, the trucks are ready to go when the morning shift arrives. The rotation system is also designed to give all batteries equal use. There is no chance of a battery running down because of over-use since the vehicles report for charging at the same times each day. Accurate records are kept of all charges and maintenance work, and the records in turn assure proper care of batteries. Additional servicing is taken care of after charging, before the batteries are replaced in the trucks. (There is always a period of eight hours between the two).

Schedules for Walkies

The two hand-guided tractors which are used in and around the elevator demand a different charging schedule because of their intermittent operation.

The single-circuit rectifier is located adjacent to the elevator on one of the floors. A different vehicle is charged each night, and one spare battery is kept for occasional extra demand.

Thus charging practices are designed for the type of rolling stock and the degree of activity. Note that the location of the rectifier near the elevator avoids long travel for the walkies, and the presence of the main charging station near the shipping room is likewise central for this type of equipment.



THREE-CIRCUIT GENERATOR type charging unit. Extensive planning went into the charging methods at this plant

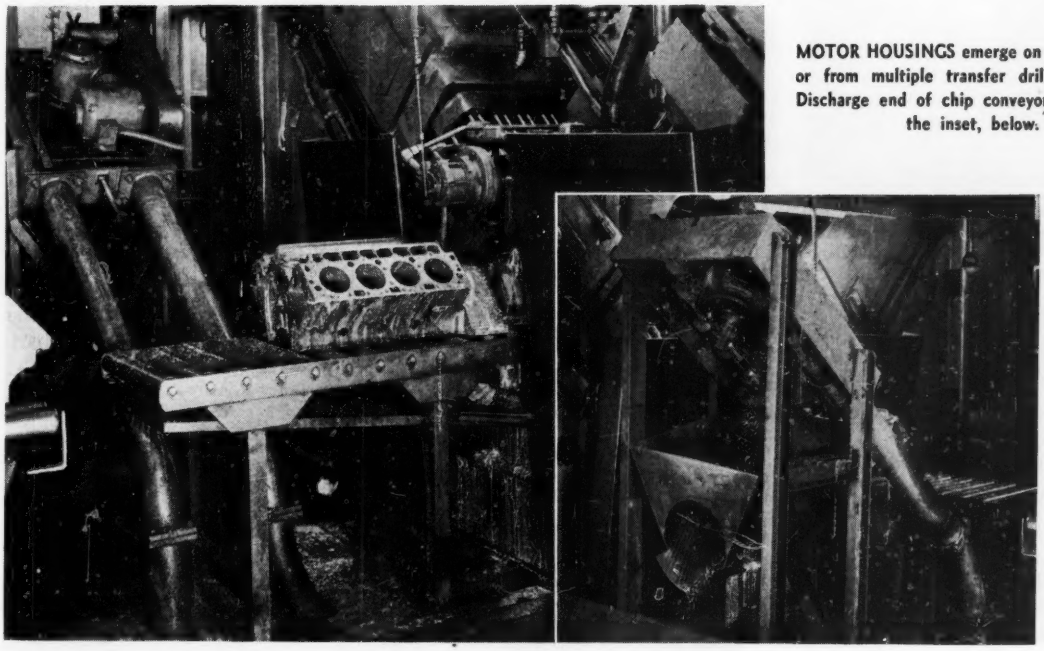
Continuous Chip Removal

The rate at which you can remove chips affects the amount of production obtained from certain machine tools. The Cadillac Motor Car Division has installed a fully automatic system for this purpose and is thus able to realize the full potential from high-volume machine tool equipment.

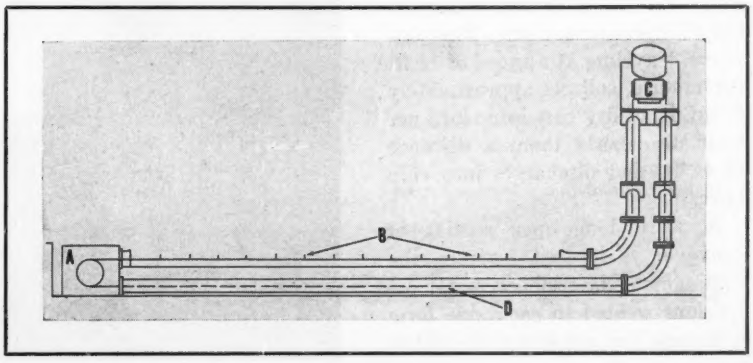
THE installation of a 12-station multiple transfer drilling machine at the Cadillac Motor Car Division of General Motors Corp., Detroit, presented several problems with regard to the removal of cast iron chips.

In this case, the multiple drilling machine performs 208 operations on cast iron motor housings as they move between the six sections of the unit. The operations performed at each station vary from drilling to reaming, countersinking and spotfacing, with as many as 21 holes drilled simultaneously by one multiple spindle drill head.

Originally an installation of several individual machines was contemplated so that chips could be



MOTOR HOUSINGS emerge on roller conveyor from multiple transfer drilling machine. Discharge end of chip conveyor is shown in the inset, below.

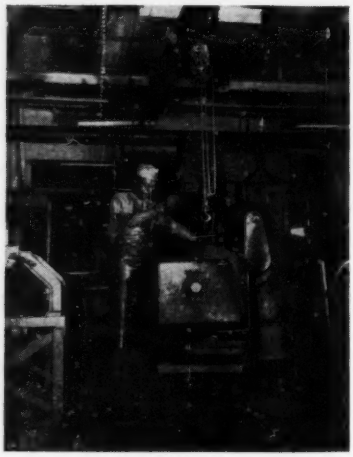


CHIP FLIGHT CONVEYOR for full utilization of high-volume machine tool equipment. (A) Drive pulley. (B) Collection trough. (C) Discharge end. (D) Return enclosed run.

shoveled out manually. While this would have required some time and effort, it was thought to be economical in view of the relatively uncomplicated nature of a system of single units.

Continuous Removal By Conveyor

But in 1948 a fully automatic 12-station transfer machine was installed, which made it necessary to find a mechanical method of chip



A LOADED CHIP BOX is raised with a 500-lb. electric hoist located on a monorail crane. Floor truck delivers boxes to accumulation.

removal. During machining, the chips drop through a 9″x32′ opening into a pit which is far too small for manual manipulation. (Air jets blow the chips away from the work.) Approximately 30 cu. ft. of chips had to be removed each hour in order to insure full operating capacity of the drilling equipment.

A study was made to determine the best equipment to meet the requirements. The result was an enclosed flight conveyor consisting of a four-in.-diameter tube inside of which travels an endless chain fitted with neoprene flights. The conveyor, traveling at a speed of 12 ft. per minute, collects approximately 30 cu. ft. of dry cast iron chips per hour, transports them a distance of 42 ft. and discharges into chip boxes.

A 30′10″-long open section of conveyor is located beneath the drilling machine. Sheet metal extensions welded to each side form a trough for collecting the chips. The flights in the conveyor move the chips to the end of the trough, then upward through the tube to the discharge point, as shown in one of the exhibits. The position of the discharge is such that the chips flow by gravity into a chute which feeds the chip boxes.

The conveyor method of removing chips has been beneficial in several important ways. 1. It has made possible the use of multiple drilling machines. 2. It has facilitated a central discharge point for the chips at the end of the machine. 3. It has eliminated the unpleasant manual handling operation, and there is no chance of injury to employes from sharp chips. 4. Little maintenance is necessary even though the equipment is in operation 24 hours a day, five days a week. 5. The savings effected through its use have more than justified the purchase of the equipment.

Coordinated Use of Equipment

The efficiency found in this phase of the operation is carried through subsequent chip handlings. Cadillac, like many other companies, uses the chips in the form of briquettes in its foundry cupolas. Various types of overhead as well as castered and powered on-the-floor-equipment are coordinated for fast delivery to the briquette machines.

The 24″x42″x18″ chip boxes are equipped with trunnions for crane handling. Once during each eight-hour shift, an operator, with the aid of a monorail crane and a 500-lb. electric hoist, picks up the full chip box and deposits it on a 2′x4′ four-wheel steel platform truck. The vehicle is pushed to a nearby central chip area, where the containers are picked off the truck by a 1000-lb. air hoist.

The hoist is equipped with a spreader bar which has a hook welded to one end and a pear-shaped link welded to the other. The box is revolved to discharge the load into a 4′6″x5′6″x34″ chip truck, whose capacity equals that of about four boxes. It consists of a U-shaped hopper hinged at each end to a rectangular wheel-mounted frame made of angle iron. At intervals these trucks are hauled by an industrial tractor to the briquetting area.

At the time the conveyor method was adopted for chip removal, the additional equipment was provided to carry through with this modern handling program. Only two men handle the entire job on a part-time basis.

1000-LB. AIR HOIST holds box while operator revolves it, discharging contents into a chip truck. Tractor hauls train to briquetting.

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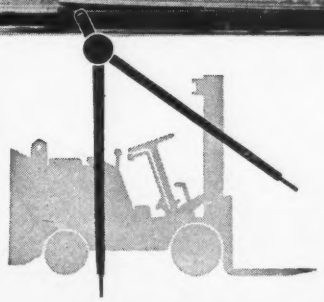
Ask to see the Towmotor Movie, "The One Man Gang," right in your office.



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Mechanical "Tie Carrier"

By D. B. FRAMPTON,
President
The Baker Wood Preserving Co., Marion,
Subsidiary of D. B. Frampton & Co.,
Columbus, Ohio

Forty per cent more storage in the same space . . . . a 25 per cent production increase . . . . better working conditions because job requirements minimize physical strain . . . . and an improved safety record. These are the accomplishments reported by this leading wood preserving company as a result of using mounted cranes as "tie carriers".

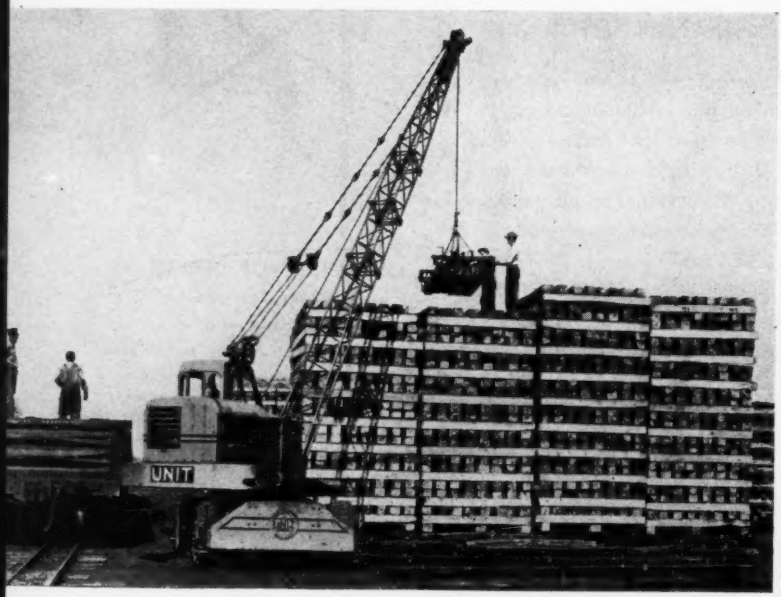
THE Baker Wood Preserving Company in Marion is a commercial treating plant which handles millions of bd. ft. of lumber annually. Aside from the large volume involved, the handling methods must also be adapted to various categories of lumber—that is, different lengths, shapes and weights. The large-volume item is railroad cross ties, of which hundreds of thousands are usually on hand. Other categories include switch ties, up to 30 ft. long, heavy bridge timbers, poles for utility companies up to 90 ft. in length, piling for contractors, as well as such miscellaneous items as fence posts and highway guard rails.

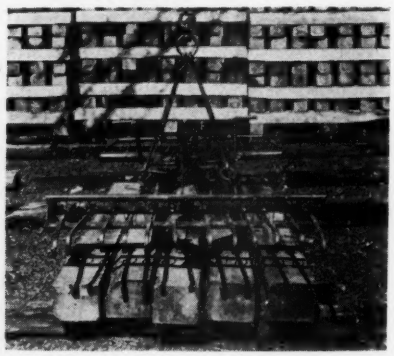
This discussion is devoted to the cross ties, the large-volume item in this plant which is one of two owned by D. B. Frampton & Co. It may interest readers to know that U. S. railroads use between 45 and 50 million cross ties per year. *(A report on this company's second plant, the McArthur Division, McArthur, Ohio, will appear in an early issue.—Ed.)*

OLD-TIME TIE CARRIERS on run board. Compare pile height with present-day "carrier" method which is shown below.

Yard Pattern for Simple Flow

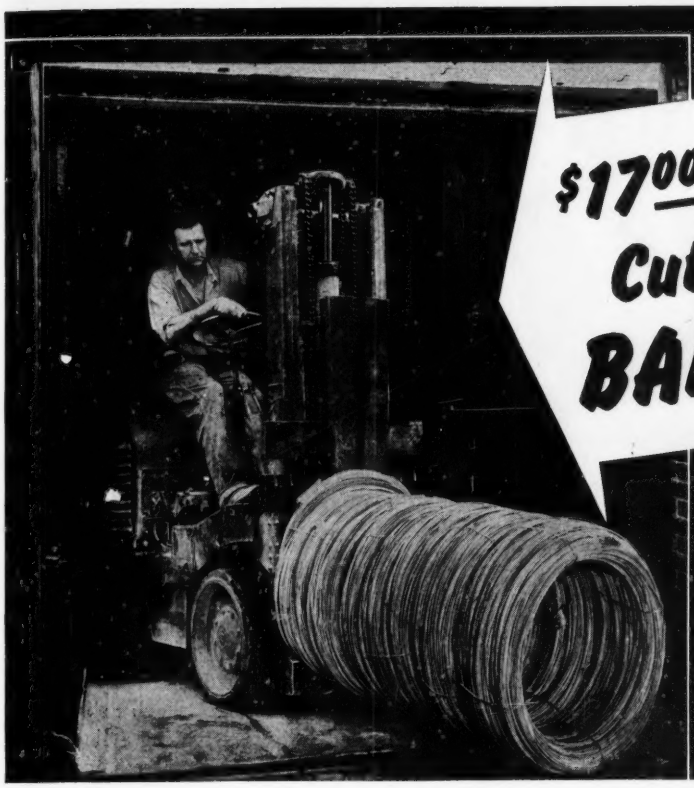
The yard in Marion comprises 60 acres, and its pattern is as follows. Seven railroad tracks extend its full length of about three-fourths of a





Above: TWO HOOKS engage each end of tie. Ties are spotted for placing by operators. They do not carry ties.

Left: CRANE REMOVES hazards, lifts six ties at time, stacks high, ranges all over yard.



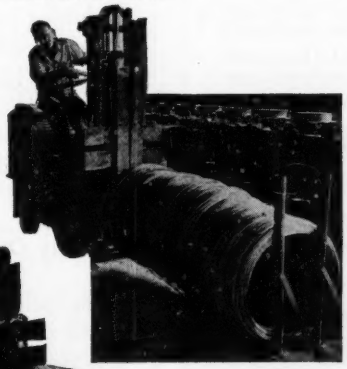
$17.00 Handling Job Cut to $1.40 with BAKER TRUCK

Same Truck helps Johnson Steel & Wire Co. improve worker efficiency and increases storage capacity 40 to 50%

With 48" forks brought together to form a ram, truck unloads coils weighing 300 lbs. each, six at a time.

Steady production is maintained by keeping machines supplied with material, despite limited floor space.

With no extra cost or effort, coils are stacked 2 and 3 high, thus doubling capacity of storage areas.



A Baker 3000 lb. Fork Truck unloads and stores coils of incoming wire from boxcars in 45 to 60 minutes per car. This job formerly took four men from four to five hours. Savings: 15-19 man hours or $15.60 per car. Since cars can be unloaded immediately upon arrival, rusting of wire from exposure to outside air is eliminated.

By keeping draw benches and machines supplied with wire as needed to keep production going at top speed, efficiency of workers has been increased. Moreover, the truck stacks coils 2 and 3 high, thus increasing existing storage capacity 40 to 50%. In addition safer and better working conditions have resulted, aisles are kept clear, and men have been released from heavy back-breaking handling jobs to productive work.

A Baker Material Handling Engineer will be glad to show you how similar benefits can be gained in your plant.

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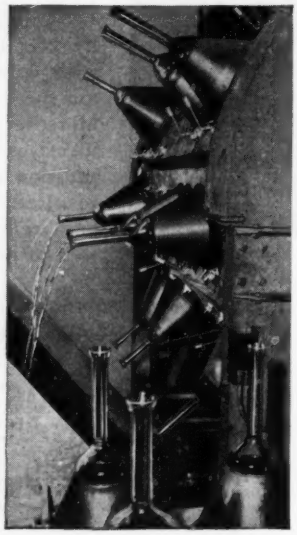
A delicate Operation

SEPARATING the yolk from the white is a delicate operation, especially for the young housewife. It must be done with care to avoid disappointing results. In industry too, cases arise where accurate, careful handling of the product is required. In one instance the problem of conveying delicate television tubes while a phosphorus coating is deposited on the screen, and then automatically pouring out the excess solution, was involved.

With the engineering and fabrication at Allied just such a special conveyor was conceived, built and installed. The perplexing problem was solved with an ingeniously designed unit that operates without hesitation or jerk that would spoil the delicate process.

You may have a handling peculiarity in your plant you think can't be made better than it is. An Allied man with experience reaching into every type of industry may be able to show you otherwise. He will be glad to call on you. Make an appointment with him today; phone TWinbrook 2-3040 or write *Allied Steel & Conveyors, Inc., 17315 Healy, Detroit 12, Mich.*



Settling Conveyor—designed to apply phosphorus deposit to television tubes. It virtually eliminates screen defects, breakage losses, and increases production—another Allied Specially Engineered Installation.

Send me a copy of your Catalog 847 entitled Conveyor Systems by Allied.

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mile on 110 ft. centers, running in an east-to-west direction. Processing buildings are concentrated in the east end, the storage stacks in the west portion. Driveways 13 ft. wide parallel the tracks, and cross drives are located at intervals of 350 to 400 ft. Ties arrive untreated in rail cars at a central unloading station in the east section of the yard. The individual ties move mechanically from the cars through an initial processing operation (doweling) and are then deposited by chain-type conveyors on flatcars for transfer to the storage stacks for air seasoning prior to treatment.

Handling in the yard is accomplished by means of two tire-mounted cranes of 6000 lb. capacity with 40 ft. booms. The ties are first stacked for air seasoning. They later are loaded into specially designed tram cars which deliver the loads into the treating cylinders or retorts. In this process, creosote is forced under pressure into the timber. The retorts are equipped with tracks for accommodating the loaded tram cars, on which the lumber is piled in a pattern that conforms to the contour of the cylinder. The treated ties may then be stacked again by the cranes and, finally, loaded from the stacks into outbound cars.

Flexibility Of Tire-Mounted Cranes

The primary task of the two cranes is tie handling. They are thus "tie carriers" in a literal sense —a designation that was once applied to operators, also known as shoulder men. A view of this earlier method is shown in one of the photos. A standard cross tie is usually 8'6" long and averages 225 lb. Thus the addition of the cranes as "tie carriers" stands for the same modernization trend that has taken place in recent years throughout industry. In all industrial fields, this trend has been away from burdensome jobs to engineered methods designed for greater safety and productivity.

For a number of years our company has been using several track-bound cranes with 60 ft. booms. They could be used for tie handling, but this application would be somewhat inefficient. The 20,000 lb. capacity of these machines would be uneconomical for the relatively light loads. Further, the ties would have to be handled from the same track on which the cranes are spotted. This involves disposal of the empties as the unloading progresses, which in turn means switching. And switching means delays, which explains the production increase up to 25 per cent obtained with the tire-mounted cranes.

The track-bound cranes are more economically utilized in connection with heavier lifts. In the east section of the yard rail cars are loaded with treated lumber, directly from the tram cars. These cranes also handle the long poles and piling as well as 12,000 lb. "packages" of treated ties, which are formed with 2" steel strapping. This "unit" handling of treated ties is a more recent development.

Neatness, Safety, Productivity

In other words, the addition of the tire-mounted cranes has also made possible a more effective utilization of our equipment. The complete mobility of the lighter cranes on the driveways gives continuous use of the tracks being worked, with no interference from switching. Cars that have been unloaded, for example, can be removed by one of our yard locomotives while the cranes continue unloading the remaining full cars. When the job on one track has been completed, the cranes travel through the cross drives to the next location on another track, and in a few minutes continue with other jobs. Again, switching time with its attendant delays is avoided.

The photos show the multiple-hook grab that was developed for tie handling. The hooks are con-

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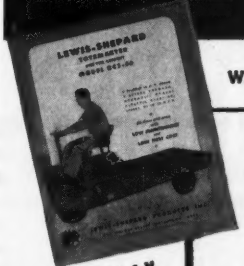

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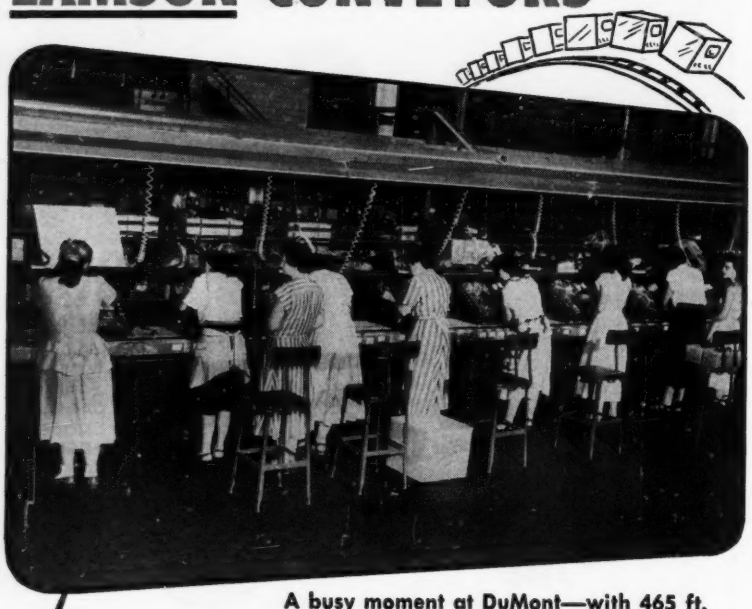

A busy moment at DuMont—with 465 ft. Lamson Assembly Conveyors in action.

QUALITY serves quality at the huge Allen B. DuMont Television Laboratories, East Paterson, N. J.—where a vast, intricate Lamson Materials Handling System—including three 465 ft. Lamson Assembly Conveyors—helps speed production of DuMont Television Sets. Thanks largely to this Lamson System, one of these superb sets—complete with components—rolls off the lines every 22 seconds.

IT took quality manufacture to produce this time and cost saving Lamson System for DuMont. It took superb engineering as well. The DuMont plant is so gigantic that you could put six to eight Major League Ballparks under its single roof. Here, materials handling is a problem of vast space as well as split second coordination. But Lamson has built its reputation on solving the big ones—and Lamson Engineers stand ready to discuss your materials handling problem with no obligation to you.

Send in This Coupon. If you have an organization in which materials handling is an important part of your operation — you're the man whose business can be helped by a Lamson System.

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Syracuse New York

Lamson Corporation, 1300 Lamson St., Syracuse, N. Y.
Please send me a copy of your latest bulletin on Lamson Conveyors suitable for.....
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trolled by a gear in the center with a latch arrangement. The crane operator lowers the grapple over a layer of cross ties to be picked up, and a hook-up man at each side sets a lever to release the hooks which are locked in a horizontal position by the latch. As the lift is made, the released hooks engage the ends of the ties, as shown. When the load is set down, the hooks are again locked in a horizontal position, and remain so until they are again released by the setting of the lever for the next lift.

With the hook points engaging the ends of each tie, a secure hold is maintained; and the ties are held evenly for stacking and loading purposes. The size of the grapple can be designed to handle from one up to 15 ties.

The cranes stack the ties up to 20 layers high. This pile height represents an increase of 40 per cent over the method possible that utilized men as tie carriers. This compacter storage pattern gives us additional square footage for other storage requirements.

After the ties have been air seasoned for a prescribed period, the cranes transfer them from the stacks to the tram cars for treating in the cylinders. At each lift, six ties are moved with dispatch and precision—and no operators need tire themselves in the process. The treated timbers will later again be stacked in the yard (unless they are loaded immediately into outbound cars). When work on the cross ties has been temporarily caught up with, the same cranes will also handle bridge timbers and switch ties in similar operations: unloading from cars, stacking, unstacking and loading of tram cars for treating.

In our industry, shoulder men, or tie carriers, still walk on a run board, a 12" plank that is laid across from the rail car to the stack, balancing a 225 lb. tie on a shoulder. The cranes with the 40 ft. booms can perform these tasks neatly, and with much greater safety and productivity.

SAFETY ENGINEER'S SLANT

THE practice of palletizing small objects such as bricks, wire bundles, forgings, kegs, or any other materials small enough to be properly racked by hand, has proved to be the greatest boon to safety and economy that has thus far been devised. It pays enormous dividends in money and man power.

There was a time when slag from reheating furnaces was run out on the floor, cooled, shoveled by hand, and carted away in wheelbarrows or by a rail system. Today the slag is emptied directly into prepared receptacles, taken by lift truck to another conveyance, and hauled away by motorized truck. Again, not once is it handled by hand. There was a time when in forging operations the bars and sheets were charged into and taken out of the heating furnaces solely by man power. Today a mechanical charging device does all this work with little or no human effort.

Permit me to enumerate and describe briefly a few more pieces of equipment that not only speed up work, but accomplish it with a greater degree of safety. There is the motorized scoop, which scoops loose materials from the floor or ground, elevates it, and dumps it into a car or bin. This apparatus, operated by one man, will do more work in a given time than a dozen men with shovel and barrow. Another time and labor saver is the small motorized and electrified vehicle with a suspended magnet, which is driven around the shops to gather up all metallic waste. This apparatus takes the place of a number of workmen with broom and scrap can. It also keeps floors clean, eliminating the danger to feet from sharp cuttings. Bulldozers are familiar to everyone. They are the safest and most economical means of leveling piles of loose materials and for other work of a similar nature. Where materials were once transferred through a large shop on trucks, moved by man power, a narrow-gauge track runs the entire length of the shop and one man, from an elevated pulpit, with a clear view of all movements, transfers materials, at will, on a large conveyor to any part of the shop. The roller conveyor used in unloading materials from box cars, which by no means is new in industry, has become indispensable from the economic and safety point of view. Cradles in use everywhere promote safe and efficient handling of materials by overhead crane. In addition to locomotive cranes, steam shovels, diesel locomotives, etc., I believe I have mentioned enough of this type of equipment, all of which prevent accidents and in addition save time and money.—H. W. Darr, Supervisor of Safety, Johnston Plant, Bethlehem Steel Co., from paper given by the author at Greater New York Safety Council Show, March 28-31.

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● Heavy duty electric hoist for stationary, plain, geared or motor driven trolley suspension. Single and two speed models. Capacities: ½ to 5 tons.

Here's Plant Improvement that

Pays off in 3 Ways

HOIST POWER

LOWERS HANDLING COSTS — Picks up raw materials, or finished parts for assembly and moves them along for pennies in power and seconds in time.

ACCELERATES PRODUCTION — Takes the slowing up "lags" out of assembly line movement. One man precision "spotting". Speeds up handling in shipping.

IMPROVES PLANT MORALE — Saves the backs and muscles of men so that they may produce with "morning" efficiency in late afternoon. Aids in accident control.

Frankly, we don't know how many factories have cut costs by putting CM Electric Hoists on production jobs, but we *do know* they keep coming back for more and more Meteors and Comets. You couldn't ask for more convincing evidence of a product's usefulness to industry than a constantly growing demand.

CM Meteor and Comet advantages are fully described in the complete CM Catalog. Write us for a copy and the name of your local distributor.

CM COMET High speed, sturdy, portable electric hoist. One hand control. Plug in on single or 3 phase power line. Capacities: ⅛ to 1 ton.

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HOIST CORPORATION

(Affiliated with Columbus McKinnon Chain Corporation)

GENERAL OFFICES AND FACTORIES: TONAWANDA, N. Y.

SALES OFFICES: New York, Chicago and Cleveland • Distributors Everywhere

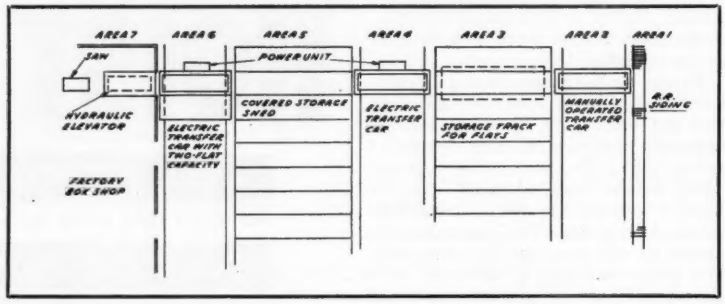
For Crating Lumber . . .

All-Track Lumber Yard

In this yard for crating lumber up to 10,000,000 board ft. are moved annually to the box shop. The methods: storage on wheels, aided by trolley ducts and positioning platforms.

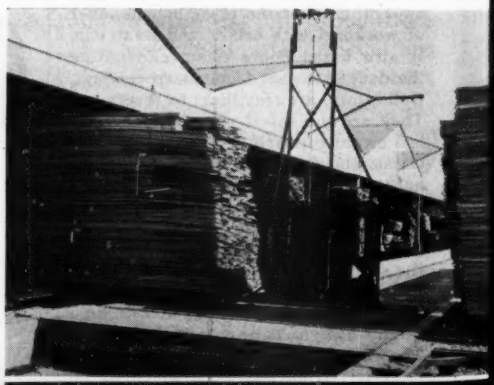
THE Libbey-Owens-Ford Glass Co., Plant No. 2, Shreveport, Louisiana, uses an all-track lumber yard which receives on a highly irregular schedule. The yard serves exclusively for crating lumber,

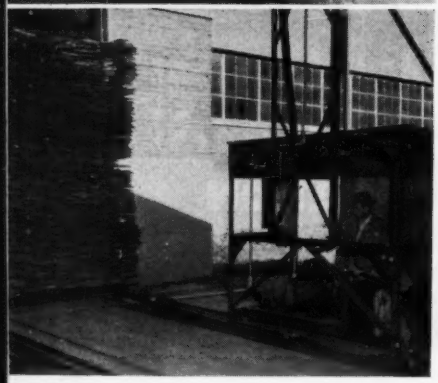
THERE IS NO RETRACING in this all-truck lumber yard; lumber is always on hand in shop.



LUMBER IS UNLOADED onto flat or transfer car. While the latter is manually operated here . . .

OVERHEAD TROLLEY DUCTS supply power to second car for switching to the shed. Next . . .

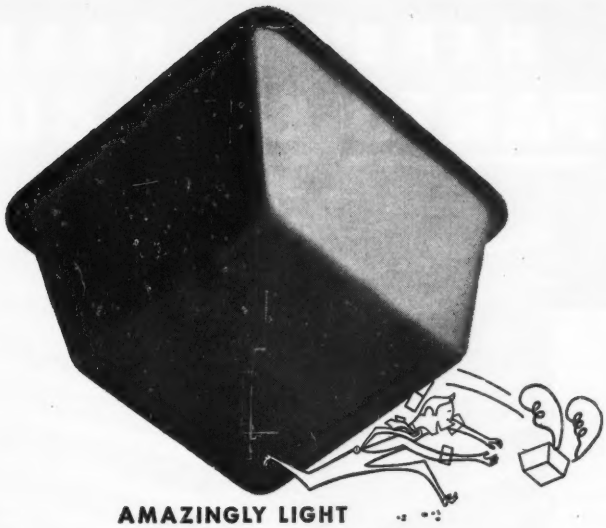




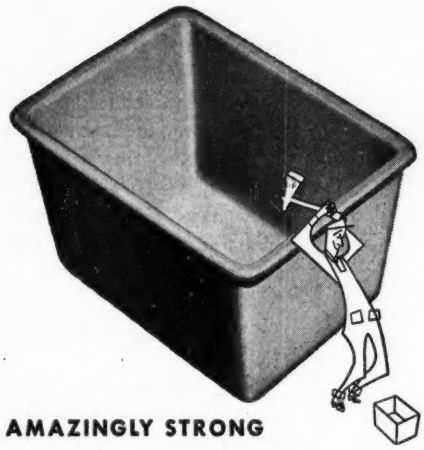
RAM ON PLATFORM OF CAR (which holds two flat), propels loaded flat into box shop. Here . . .

HYDRAULIC ELEVATOR maintains a constant level of the lumber, eliminates reaching, bending.

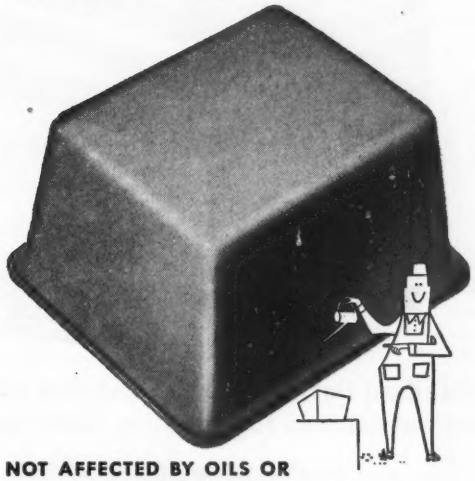
Amazing Tote Boxes



AMAZINGLY LIGHT

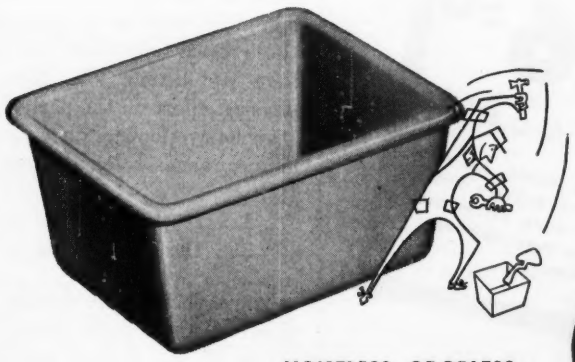


AMAZINGLY STRONG



NOT AFFECTED BY OILS OR MOST ACIDS, ALKALIS

These boxes speed up the work in your plant, save time and money. They lighten the work—are made in colors for easy departmental segregation. Made of U. S. Royalite, the tough new thermoplastic, these boxes are non-warping, non-corrosive, as well as waterproof, stainproof, mildew-proof.



NOISELESS, ODORLESS

BOXES IN READY-MADE SIZES

Here are a few of a wide range:

Inside Dimensions:			Weight
Length	*Width*	*Depth*	
18.0	12.0	6.0	2.20
18.0	12.0	12.0	4.80
22.0	14.0	12.0	6.00
22.0	16.0	8.0	3.68
24.0	18.0	14.0	8.25
25.0	25.0	14.0	10.20

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PARTS BOX BUY!

No. 524

THE NEW Brusco BOX

A standard Parts Box . . . designed by Brusco experts to meet the demand for handling miscellaneous parts.

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2. Three Piece Construction — Securely Arc Welded.
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5. 7½" Standard Underclearance 26" Wide; 36" Long; 26" Deep.
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WRITE FOR FULL INFORMATION ON OTHER STANDARD AND SPECIAL BRUSCO MATERIAL HANDLING PRODUCTS: Drop Door Parts Boxes; Forging and Ingot Tiering Racks and Cooling Boxes; Floor Trucks; Corrugated and Tubular Pallets and Dump Hoppers.

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which is routed to the box making shop 24 hours each day.

Since glass is boxed immediately after it is inspected, it is vital that an uninterrupted supply of lumber be available to the box shop at all times. Glass emerges from the drawing machines in continuous sheets; consequently the only way to alter production, in case of a prolonged box shortage, is to stop it altogether.

If one car load (sufficient for average daily requirements), were to arrive each day, the material could be fed to the shop as fast as it could be unloaded. Even slight deviations from this schedule could be handled. However, oftentimes many days elapse without a receival, and then up to seven box cars arrive at one time.

What Had to Be Done

Thus, the problem was to provide a bank of lumber which could be fed to the box making shop on a regular schedule. While it is not necessary to cure the crating lumber, it nevertheless has to be protected from the elements.

Irregular receivals often mean that men on other jobs have to be pulled off their normal duties for unloading and transfer, or full-time operators assigned to these duties stand around idle during slack periods. The object was to spend a minimum number of manhours on these operations and yet make them a full-time job. Nor could physical effort on the part of operators be overlooked, since incoming lumber ranges in length from 16 to 18 ft.

The Lumber Flow

The layout of the storage yard, shown on these pages, gives the location of the various tracks and storage areas in relation to incoming rail cars and the box shop. Loads usually travel in a straight line from the cars to main storage. (Sometimes, during unusually heavy receivals, they are temporarily stored elsewhere.) From this

station, they must be diverted to one of the five doors of the shop. Wherever possible, lumber is drawn from a storage bay nearest to its point of use. Conceivably, with proper arrangement of transfer cars in Areas 2 and 4, a loaded carrier could be pulled directly from the rail car all the way to Area 6, then into the shop.

Up to seven box cars can be accommodated on the rail spur, Area 1. Lumber is removed from the car onto a "flat" (a rectangular carrier constructed of channel iron and equipped with eight flanged wheels) which rides on the tracks of a transfer car; the latter operates on rails parallel to the spur. The platform of the transfer car is level with the rail spur so the flat can be removed at ground level at the next station. It also places the bed of the flat somewhat lower than the door of the rail car, which frequently places the level of the pile at waist height.

When the flat is loaded, the transfer car is lined up with rails of the outside temporary storage area (Area 3). A cable attached to a power winch on a second transfer car, in Area 4, pulls the loaded flat onto the storage tracks or through this area and onto its platform. Area 3 is primarily designed for storage of empty flats, but can accommodate full ones during unusually heavy receiving periods.

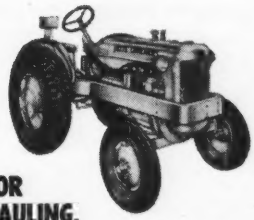
Double Size Transfer Car

The second transfer car is electrically operated, receiving its power from overhead trolley ducts. An operator sitting in a covered station at one side of the platform controls both forward and backward movement of the car, the power winch and also a ram which operates between guides on the platform. The ram is designed for pushing loaded flats from the car to its proper track inside the covered storage shed (Area 5). This shed contains 20 parallel tracks which hold seven flats each, a total of 140. Because storage time varies

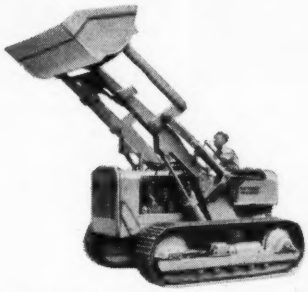
(Turn to page 45)

Mechanize Material Handling TO CUT PRODUCTION COSTS

Speed Up Loading and Hauling in and around Plants with Modern ALLIS-CHALMERS Equipment. Choice of Various Types and Sizes!

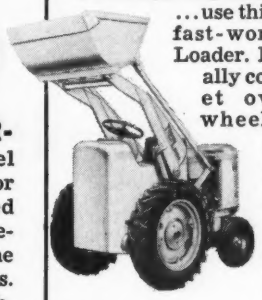


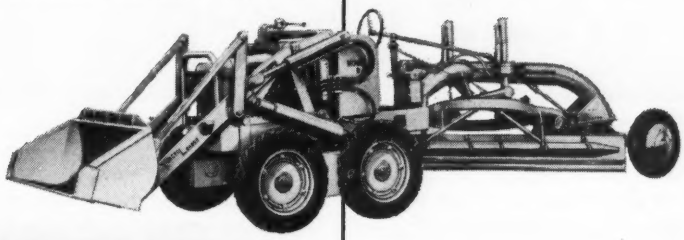
FOR HAULING, countless other jobs, use this industrial Model IB wheel tractor — 13½ drawbar hp. Available with front-end crane, snowplow, boom, winch, mower, rear power take-off and belt pulley.



HEAVY-DUTY EXCAVATOR-LOADER — 11,000 lb. Model HD-5G Diesel Crawler Tractor with hydraulically operated Tracto-Shovel — 14 interchangeable attachments including crane hook, buckets, blades and forks. Other diesel tractors to 40,000 lb.

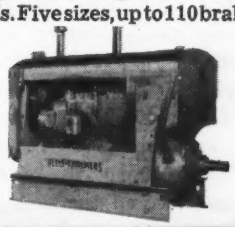
FOR LOADING BULK MATERIALS ...use this rubber-tired, fast-working Tracto-Loader. Has hydraulically controlled bucket over driving wheels for easier steering. Two sizes: 10-cu. ft. and ½-cu. yd. Various interchangeable buckets and other accessories.





COMBINATION MOTOR GRADER AND REAR-END LOADER — two machines in one! Maintains haul roads, parking lots, plant areas — handles all types of grading — PLUS loading — all at a new low in cost. Other A-C motor graders to 104 brake hp — diesel powered.

FOR POWERING hoists, generators, elevators, equipment of all kinds — use heavy-duty, high-torque A-C engines. Choice of fuels. Five sizes, up to 110 brake hp.



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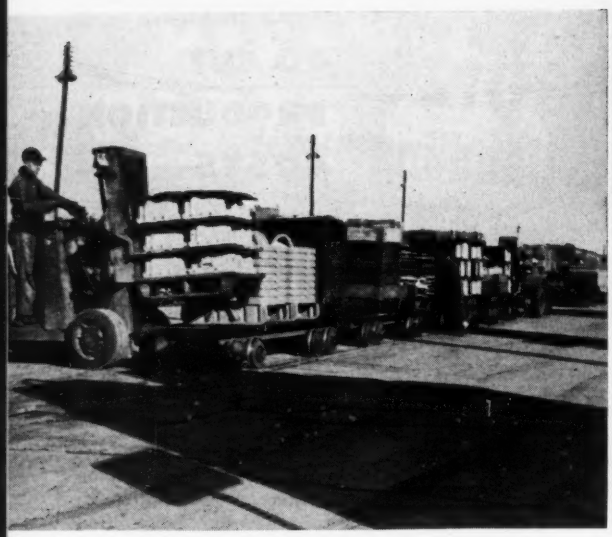
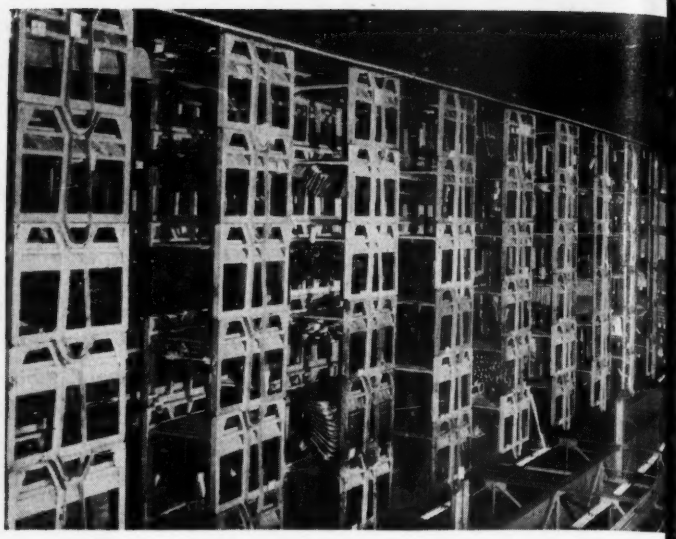


ORK TRUCK adds final load (skid pallet) to train, which gives economical mass handling.



TIERING RACKS, BOXES in storage area. This is safety, neatness, stock control, use of cube.

How "Caterpillar" Standardized On Containers

Part I

By W. NAUMANN,
Production Manager,
Caterpillar Tractor Co., Peoria, Ill.

"You don't merely put materials in a box."

The author explains some of the engineering and organizational aspects of efforts made to obtain best results when "Caterpillar" standardized on a new container system. Purpose was to bring the supply function of parts up to par with the company's new, high-geared production facilities.

THIS report describes how Caterpillar Tractor Co., manufacturer of diesel tractors, engines, motor graders and earthmoving equipment, brought its supply lines up to par with highly productive machining and assembly operations. Early in 1949, two new "Caterpillar" plants were in operation on our 400-acre plant site. These new facilities, comprising about 1,800,000 sq. ft., of themselves underscored the need for a streamlined parts supply program. The high-geared machine shops and high-capacity assembly lines made an equally up-to-date material flow mandatory. Conversely, the latest production machines and techniques in the new factories made our old wooden containers inadequate. These boxes, made of two-inch lumber and built up with nesting sections, had become somewhat cumbersome. A main drawback was that they did not permit full utilization of overhead space.

Parts Study Is Essential

Some 40,000 active parts are used in our combined manufacturing and assembly plants, which produce diesel engines, tractors and earthmoving equipment. Several work requirements had to be met in selecting the new containers. 1. Suitability for use in inside as well

as yard storage areas. For our large volume of rough castings and forgings we use extensive storage yards much the same as "storerooms." 2. Adaptability for overhead as well as on-the-floor handling. The latter method included a variety of manually propelled and power equipment. 3. The containers had to fit the 38" wide flatcars of our narrow-gauge industrial railroad, several miles of which connect storage yards and plants. 4. They had to fit in our assembly lines with economy of space use.

A study of parts was undertaken with the objective of determining the fewest possible containers on which we could standardize. It was a foregone conclusion that they had to be simple of design so that they would be simple and safe in handling. Considerations of safety and good housekeeping were paramount in our investigations. Our exhaustive study convinced us that three major types of containers would be adequate for the hundreds of shapes and sizes to be handled.

Stacking Box for Small Parts

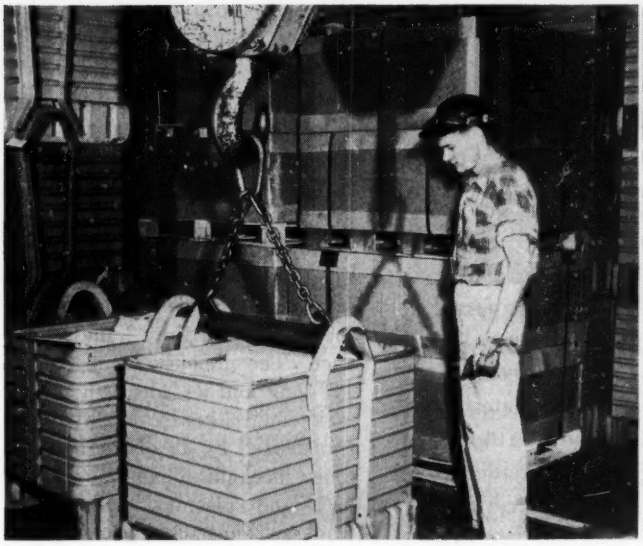
For small castings and forgings, which were handled loose, a skid box was indicated. The size adopted was 27" wide, 38" long and 24" deep, with an underclearance of 7". The reason for this clearance was that we have 700 mechanical hand jack trucks in all factory areas which move in-process work between machines. Hand-guided motorized trucks are used in cases where such loads are heavy.

It must be borne in mind that the materials involved (mostly rough castings and forgings) are in the "heavy" category. Hence the box selected was of a rugged all-steel construction. While we decided to hold the maximum load per container to 4500 lb., the average load in many cases is closer to 2000 lb.

For tiering purposes and safety, a box with flared stacking guides was chosen. The stacking guides or angles are self-centering, and thus expedite handling and also contribute to safety. For overhead handling, the looped upper parts of the angles serve for attachment of lifting bars or grapples. The cause of safety is also aided by the overlapping feature of the stacking angles at the sides. While the skid base rests on a 7/8"-inch lip of the box underneath, the upward extending side members serve as retainers, and thus make for a stable tier.

The 24" depth of the box was decided on after tests showed that a man of average height could reach into the farthest corner without straining. However, in some of our welding operations relatively few parts (of the same type and size) are stored per container. The press runs are planned well ahead of the welding schedule, and hence considerable temporary storage of these stampings is necessary. The use of the 24" deep boxes for these parts would entail waste of vertical space; for this reason a half-box, 12" deep, was added. This half-box, incidentally, is the only "modified"

LIFT BAR for stacking boxes. Many purchased parts come in "disposable" packs, which are shown at right.



FOUR-WAY ENTRY skid pallets. Note: wire strapping makes safe loads for repeated transfers on trucks, trains.

It's a Hard Worker!

Battery industrial trucks such as this husky are the wheel horses of modern material handling systems. They do their heavy work anywhere from 8 to 24 hours a day... week after week, year after year . . . with little or no complaint. That's dependability!

The surest way to get full value out of these hard-working, revenue-producing trucks is to equip them with rugged, unfailing batteries... the kind that stay on the job, out of the repair shop. Which is another way of saying, "You'll do a better job cheaper with EDISON Storage Batteries."

Edison cells were designed for hard work. They're built of steel inside and out, and their electrolyte preserves the steel. The steel-sheathed active materials can't shed. Edison batteries can't be injured by accidental short-circuiting or reverse charging... or by standing idle during shutdowns . . . or even by freezing.

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container of the three standard types that were chosen. While it is, in a sense, a "special purpose" type, it involves no "special handling". Its only variation in dimension is in depth, and hence it can be stacked and transported with the deeper boxes when necessary. This smaller container gives economy of space use, convenience in handling. It also reduced considerably the total investment in this equipment.

The 27" x 38" x 24" dimension of the boxes was also found suitable for our machining operations; their capacity is sufficient to keep the machines supplied with a reasonable amount of shop delivery.

A "Better" Stacking Rack

Longer pieces, such as crankshafts, camshafts or axle housings, which were too long for the boxes, required an open-end container. For these and similar materials (many of irregular contour), a two-sided rack was adopted. It has the same tiering angles at the sides as the boxes, also the 7" underclearance. The dimensions: 32" wide, 42" long and 24" deep. Thus the rack could likewise be lifted and transported by all of our handling tools: mechanical hand jack trucks, fork and platform type power trucks, riding and hand-guided units, crane trucks, and traveling bridge cranes.

The open-end construction permits long component parts to extend on each side, without sacrificing safety or good housekeeping practices. Racks containing such longer items are spotted farther apart, and the stacks remain stable and neat-appearing.

Details of method, or of how procedures were adapted to the new containers, are given in later paragraphs.

Versatile Skid-Pallet

There was also a large group of items of fairly regular contour and with flat surfaces that lent themselves to palletizing. Again, because of the 700 hand jack trucks

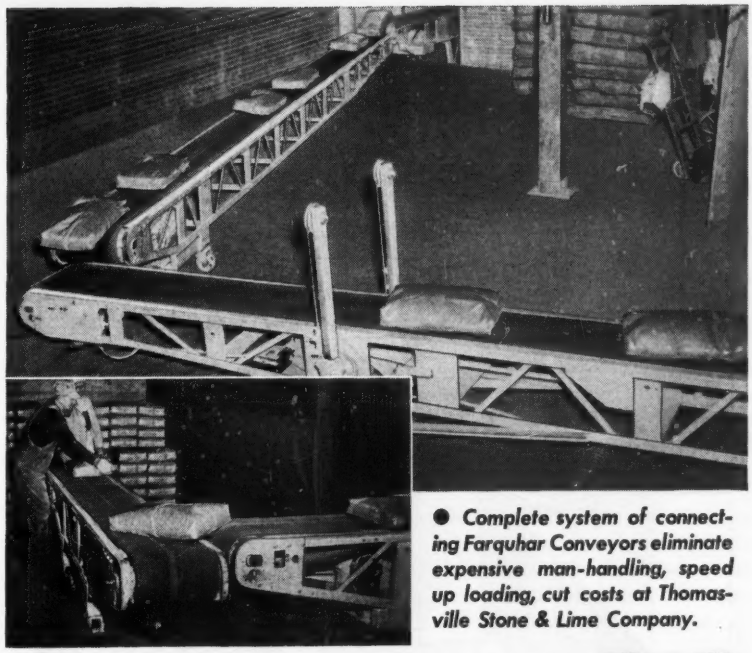
which we had, any pallet-type load carrier that would be adopted had to be adaptable for movement by hand trucks as well as fork trucks. For this reason we had designed what we call a skid-pallet. It has the same 7″ underclearance as the box and the rack, and the runners have openings on each side which permit four-way entry by fork truck. The dimensions of this single-deck all-steel load carrier are 32″ x 42″. The steel deck has two corrugations on each end for reenforcement.

Thus, the hand jack and platform type power trucks can pick up the skid-pallets from either end, and fork trucks from the sides as well as from both ends. The four inches added to the underclearance of all containers—that is, above the three-inch openings normally used on pallets—does not represent a loss of stacking height. Tiering is effectively accomplished with all materials in the boxes, racks and on the pallets; the four inches added to the underclearance are more than justified by the flexibility resulting from handling by platform and fork type trucks.

The 42″ width of the skid-pallet was decided on for the reason that this is also the width of the fork trucks. By leaving a 4″ access space on each side of the tiers, the trucks can enter into the depth of any column, when necessary, without disturbing adjoining stacks.

Methods Engineered for Containers

A fourth category of parts is too bulky for any containers. This group consists of what we call on-the-floor storage items—for example motor blocks and transmission housings—which are stacked individually to a height of floor capacity or to the limits of practical stacking height. In the yards, items in this group are usually handled by crane trucks; or, if they are in the "very large" category, by a tire-mounted crane. *(Yard handling of extra-large components, such as are used for earthmoving equipment, is outside the scope of this article,*



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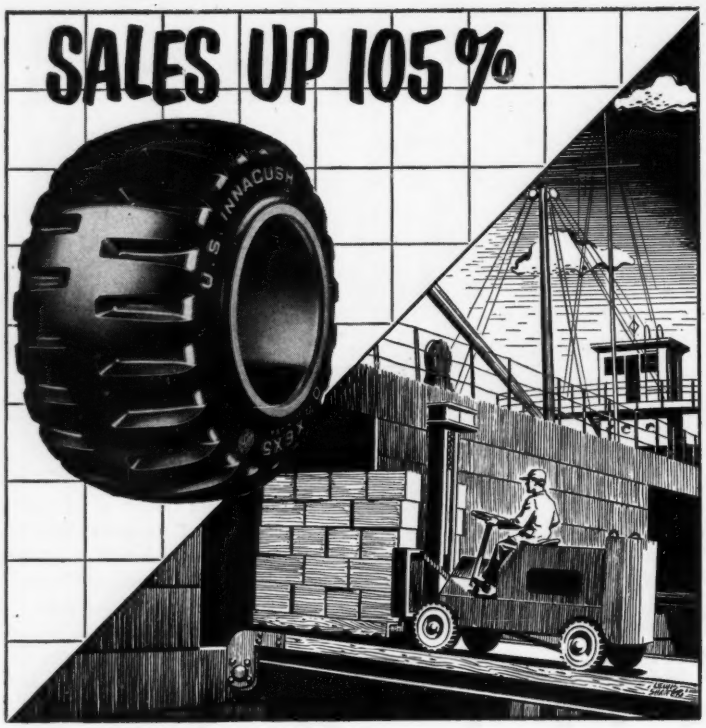


What's Behind the Tremendous Demand for U.S. Innacush?

Why have sales for this unique cushioned solid tire skyrocketed in so short a time? The answer lies in the U. S. Innacush's easily demonstrated ability to please purchasing agents—with reduced costs; superintendents—with less maintenance on trucks and floors; and drivers—with unequalled comfort and steering control.

Here's what the U. S. Innacush can do for you:

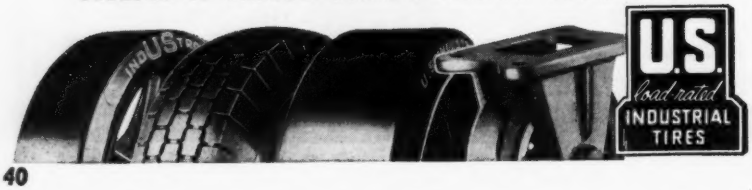
- ★ Reduce steering gear and bearing maintenance.
- ★ Minimize damage to fragile loads.
- ★ Give you a tougher, deeper tread for long, even wear and easy steering.
- ★ Give you a special inner cushion rubber for maximum shock absorption, yet increased carrying capacity.
- ★ Give you a tire less subject to chipping and cutting.
- ★ Give greater riding comfort.
- ★ Give maximum traction even under extreme loads with its lug tread design.

U. S. Innacush is available in a complete range of sizes for almost every industrial truck, and is only one type in a complete line of U. S. Industrial Tires ready to serve your materials handling needs.

Your U. S. Royal Distributor can show you how the U. S. Innacush and the entire U. S. Industrial Tire line will save you money, and how his on-the-spot service will cut your "down time" costs. He's in the Classified Telephone Book—call him today.

U. S. ROYALS

***Products of* UNITED STATES RUBBER COMPANY**



which considers containers for in-plant and yard handling. For this reason the handling of the largest components was described by the author in a separate report. It appeared in FLOW for April.—Ed.)

As mentioned in the introductory paragraphs, the various shops and the tractor and engine factories are served by a narrow-gauge industrial railroad which is several miles long. This railroad is the chief supply line in the inter-building and yard transportation system. All the containers fit adequately and safely on the 38" x 129" flanged-wheel flat cars. While the 42" dimension of the tiering racks and the skid-pallets overhangs the cars two inches on each side, this fact is a minor consideration. If it should be necessary for reasons of absolute safety, these containers can be spotted lengthwise on the flat cars instead of crosswise.

Wire-Strapped Skid-Pallet Loads

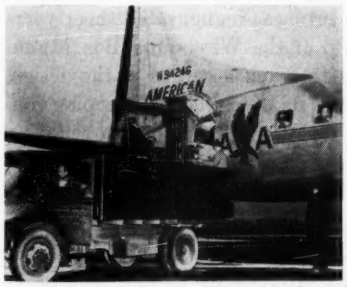
It was stated earlier that details of the handling methods would be given special attention in this report. The purpose of this emphasis is twofold. One is to prevent the reader from assuming that the purchase of containers, by itself, constitutes a handling system. This is not the case, even when all handling tools are already available. The corollary point is that the adoption of a uniform container system entails handling procedures which must be engineered for the purpose. Usually this will mean changes in established methods, or the development of new techniques if the best results are to be obtained from the new equipment. There must be supervision, follow-up, and continuing research in order to explore the most economical means for the desired result. Merely putting materials in a box or on a pallet does not serve the purpose, it will be found. Here are some examples from our own experience.

In some instances, parts were of such shapes that they were not held

firmly to the skid-pallets. It must be remembered that in our somewhat far-flung operation pallet loads of parts are frequently transported fairly long distances by industrial railroad or highway truck from yard storage to the point of use in a plant. Moreover, a number of palletized items are built up to four layers high by means of tray separators. Hence such items are strapped with two lengths of wire to the pallet base. This practice not only gives stability during transport, but is also a safety factor during excessive storage periods and subsequent handlings. Pieces dropping from unitized loads are not only a hazard to personnel but also constitute a major source of scrap or damage loss.

(In next month's concluding part, the author discusses details of method relating to high and low tariffs, paved yards, stock arrangement, the industrial train operation, including provisions for maintenance of the steel containers. Both parts of the discussion make up a valuable guide to the requirements of an efficient container system for heavy parts.—Ed.)

FORK TRUCK TO THE RESCUE— The task of loading a plane with a 720-lb. pump for motor-driven fire-fighting



apparatus posed a problem for American-LaFrance-Foamite Corp. at Elmira, N. Y. The shipment was bound for Havana, Cuba. With the plane's freight door some eight ft. above ground it was impossible to do the job manually, and the air terminal lacked handling equipment for doing it mechanically. The problem was solved by driving one of the company's fork-lift trucks into one of its service department over-the-road vehicles, and transporting the load and truck to the plane. The fork truck then lifted the pump to the level of the freight door, where it was moved into the plane. The lifting height of the fork truck was sufficient to spot the load in the plane from the ground—Courtesy, Clark Equipment Co.

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it's the new Rapistan line of

COLD-FORGED CASTERS

no other casters give you such strength and wear at such low cost

For top economy, you can't beat these new Rapistan Cold-Forged casters! They're tough, sturdy, long-wearing—and amazingly low in cost. The secret lies in cold forging, a process never before applied to the manufacture of casters. Tremendous pressure flows molecules of steel to points of greatest wear; refines metal grain structure, to insure extra strength throughout.

Rapistan Cold-Forged casters have double-ball raceways for oil-smooth swiveling action . . . a grease reservoir for constant lubrication of heavy sectioned swiveling parts. The new cold-forged top plate and yoke provide exceptional hardness, strength, durability and resistance to shock. Available with nicro-steel, durastan resinoid, or rubber wheels, in 3¼", 4", 5" and 6" diameters, with or without thread guards. Capacities from 140 to 400 lbs.

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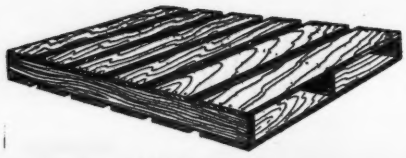
ON THE  PALLET

NEWS • VIEWS • TRENDS

SALES of belting, hose and other industrial rubber products during 1950 should equal or improve over the $450,000,000 volume established during 1949, according to Walter F. Spoerl, general sales manager of the mechanical goods division, United States Rubber Co. Sales of industrial rubber products follow closely the Federal Reserve Board Index of Production. The prolonged coal strike or other major industrial tie-ups which would affect this index is bound to affect the activity in the mechanical rubber goods industry. The sales volume achieved by the industry in 1949 was more than double any prewar year. However, it was $110,000,000 below the all-time record sales volume of $560,000,000 set in 1948. Spoerl attributed this sharp drop in dollar volume to the leveling off of business, the hesitancy on the part of large volume industries toward forward buying, completion of inventory liquidation, strikes in basic industries, and currency devaluation abroad which brought about a sharp drop in foreign bookings.

THE Hyster Co., Portland, Oregon, Peoria and Danville, Illinois, has taken over the manufacture and sale of Turret Trucks formerly produced by the Salsbury Corp. of Los Angeles, according to an announcement from Ernest G. Swigert, president of Hyster. The acquisition of the five Salsbury horizontal materials handling trucks—Pallet Truck, Tug, Platform Truck, Cargo Truck and Auto-Loader—rounds out the previous Hyster industrial truck line consisting of four fork lift trucks ranging in capacity from 2000 to 15,000 lb.; a 10,000 lb. mobile crane; and two straddle trucks of 18,000 and 30,000 lb. capacity. Now manufactured at Hyster's Danville, Illinois plant, the new line will be known as Hyster Salsbury Turret Trucks and will be sold and serviced by the company's 168 distributors located in principal cities.

WHITING CORP. has announced that its Philadelphia District Sales Office has moved from the Broad Street Station Building to No. 9 Rittenhouse Place, Ardmore, Pa. G. M. Dennis will continue as district manager.

THE Westinghouse Electric Corporation, which last year spent more than 40 million dollars to ship its goods around the country, intends to ship by rail instead of by truck wherever rates and service are comparable.

This "support-the-railroads" policy was stated by Andrew H. Phelps, Westinghouse vice president in charge of purchases and traffic, who said the highway trucking industry's "state of semi-regulated confusion threatens the orderly development of a well-integrated and economically sound system of transportation."

Intensive study by Westinghouse of this traffic problem, the executive declared, has led to a formulation of the following company policy: 1. Railroads are to be used for all Westinghouse shipments unless trucks offer important advantages in service or lower rates. 2. Whenever truck rates are lower than rail rates, the railroads are to be given an opportunity to make adjustment which will enable us to ship by rail at competitive rates.

NEARLY 200 members of the wirebound shipping container industry, who completed the technical training course of the Wirebound Institute, graduated during March and April as "Wirebound Engineers". They received certificates attesting that they are technically qualified to design wirebound boxes and crates. The Wirebound Institute was inaugurated three years ago under sponsorship of the Wirebound Box Manufacturers Association to teach a course in the design, testing, and quality control of wirebound shipping containers. The course consists of 30 lessons, covered by mail, and five periodic "clinic" sessions at which personal attendance is compulsory.

C. RODNEY NEFF, vice president of The Neff & Fry Co., died recently. After having been president of the company for some time, he relinquished the office shortly after the death of his father a few years ago. He was succeeded by D. H. Herbster who is now president.

PUBLICATION of the text of comprehensive discussions on problems of plant maintenance has been announced by Clapp & Poliak, Inc., management of the Plant Maintenance Show which was held in Cleveland in January. The two-volume text, "Techniques of Plant Maintenance—1950", are the proceedings of the first Plant Maintenance Conference held concurrently with the show. Thirty experts in various

(Turn to page 55)

MEN IN THE NEWS

THE election of Otto G. Schwenk to the board of directors of The Yale & Towne Mfg. Co., Philadelphia, has been announced by Joseph A. Horne, chairman. Schwenk has been serving as vice president in charge of production since September, 1948. He succeeds the late F. Carroll Taylor.

CARL J. SHARP, president of Acme Steel Co., Chicago, has announced that the board of directors has elected two new vice presidents. They are Allen B. Wilson, formerly general manager of Producer Products, and Alex L. Moll, previously sales manager of Strip Steel. Wilson, as vice president in charge of Special Products, will continue his activities on new product and market development for the company. He was elected to the board of directors in 1948. As vice president in charge of Strip Steel sales, Moll will head this sales division of the company.

A NEW General Electric apparatus sales district, twelfth in the nationwide G-E Apparatus Department sales system, has been established according to C. H. Lang, vice president in charge of apparatus sales. G. F. Maughmer, formerly manager of the G-E sales office in Los Angeles, has been appointed to head the new organization, which will have its headquarters at St. Louis. The new district consists of all sales areas presently in the company's St. Louis, Kansas City and Omaha territories. The main office of the Apparatus Department is in Schenectady.

AT the annual stockholders' meeting at the general offices of Albion Industries, Inc., Albion, Mich., the following were elected as members of the board of directors and officers: Ralph Brooks, chairman of board and general manager; Edwin Konkle, president; R. (Bud) Davis, vice president and treasurer; Stephen Janus, vice president in charge of sales; A. A. Magnotta, secretary.

C. H. Adamson has been named advertising manager of the Alvey Conveyor Mfg. Co., St. Louis. For the past four years he has been assistant chief engineer of the company.

J. W. MORGAN has been advanced to the position of assistant sales manager of the Hyster Co.'s eastern sales division, it has been announced by Philip Hill, general sales manager at Portland, Oregon. Morgan will be in charge of tractor equipment sales activities and will be located at the Hyster Peoria, Ill., plant. His experience covers two years as Hyster district representative in addition to several office sales positions.

"Beware of little expenses! A small leak will sink a great ship."

—Ben Franklin's Almanac, 1757

One penny dropped maketh not much noise but thousands of pennies dropped over the year maketh a big bang before ye annual stockholders meeting.

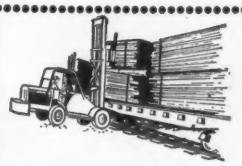
—Acme Steel's Notebook, 1950

Dear Sir: Maybe you have had too much else on your mind to worry about how your company packages, ships, or bundles materials within your plant.

But in these days of rising costs, you can't afford to pass up the savings you may be able to make in this part of your business.

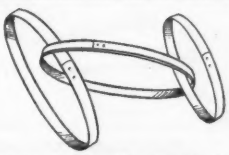
Here at Acme Steel Company, we have shown more than 50,000 customers how to cut costs, save time, labor and materials with Acme flat steel strapping, Acme stitching machines and wire, and other Acme Steel products. In 9 out of 10 cases, Acme sales engineers are able to start you on the road to thrifty benefits.

Some specific examples of what we can do are shown here. It takes only a minute to read them—and not much longer to pick up your telephone and call the Acme Steel Company service office nearest you. (There are 46 of these offices in the principal cities of the U.S. and Canada.) Or mail the coupon today for more information, and detailed case studies in your particular field.



Big savings in handling costs

Steiner Lumber Co., Fresno, Cal., cuts costs 50%. West Fresno Lumber Co., Fresno, Cal., reduces labor costs 70%. Acme Steelstrap Method of bundling lumber means quicker tallying, less damage and pilfering, reduced danger of injury in the lumber industry —and in your business, too!



Hoops—for everything but skirts!

And if there were a hoop skirt manufacturer left, he would probably come to us for better hoops at lower cost. As it is, Acme Steel Hoops, for barrels, kegs, and special containers, are helping the cooperage industry cut costs and save money,

ACME STEEL

Of the 3759 Acme Steel employees, 318 or 8.5% have worked with Acme for more than 25 years each and are members of our Quarter Century Club. Their total service represents 8618 years—tribute to "A Good Place to Work."

ACME STEEL CO. CHICAGO

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ACME STEEL COMPANY, Dept. F. 50, 2838 Archer Avenue, Chicago 8, Illinois

We manufacture_____. Please send me booklets on Acme Methods checked.

- ☐ Please have sales engineer call.
- ☐ **Packaging, Shipping, Materials Handling**—"Savings in Shipping" tells how to save money and safeguard customer good will with Acme Steelstrap.
- ☐ **Shipping (Carload and L.C.L.)**—"Acme Unit-Load"—The story of reduced damage claims and better handling for shippers.
- ☐ **Bag and Box Assembly**—"Profit by Stitching" demonstrates cost-cutting Acme Silverstitchers and Acme-Champion Stitchers.
- ☐ **Product Assembly**—"Acme-Morrison Metal Stitchers"—for savings in fastening metal-to-metal or metal-to-other materials.
- ☐ **Book Assembly**—"Acme-Morrison Book Stitchers" for savings in the graphic arts field.

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COMPANY_____

STREET_____

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ACME STEEL CO. CHICAGO

NEW MILSCO SEATS

FOR HEAVY DUTY MOBILE EQUIPMENT

Many Features

Greater Economy

MILSCO Commander

The Milsco seats illustrated are typical of the standard Milsco line for various types of mobile equipment. New features combine extra comfort and serviceability. Sturdy metal frames; Foam Rubber padding with a choice of durable covering materials; easy installation.

MILSCO FOLDING BACK REST

If your equipment requires special seating, our Engineering Department will gladly work with you. Put our years of specialized seating experience to work . . . without obligation.

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YOU'LL DO IT BEST WITH MATHEWS CONVEYERS

Have you a conveying problem? Moving packaged materials up, down or level? Whatever it might be, there is Mathews equipment available to solve it for you, and to save you money and time.

Mathews standardized Belt Conveyers are easily erected. And, if you need Portable Belt Conveyers, or sections of Roller and Wheel Conveyers, Mathews supplies them from its complete line. Engineered systems are given immediate attention by Mathews Engineers.

Send for problem-solving bulletins today!

MATHEWS CONVEYERS

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PACIFIC COAST DIVISION

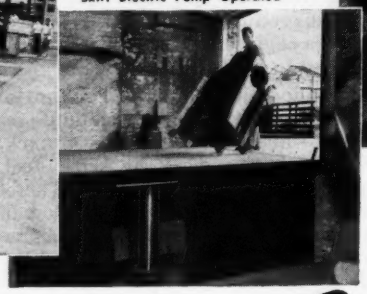
Mathews Conveyer Company West Coast . San Carlos, California

CANADIAN DIVISION

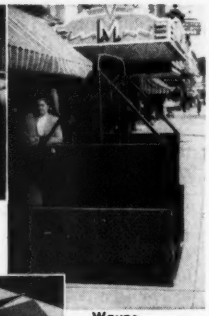
Mathews Conveyer Company, Ltd. . . . Port Hope, Ontario

Tilting Loading Dock Ramps

Straight Platform Lift with Full Skirt Electric Pump Operated



Wayne Lift in Newspaper Plant



Wayne Sidewalk Elevator

Straight Platform Lift — 2 Cylinders Platform Lift Air/Oil Operated

Cut Handling Costs

BETTER material handling offers industry its biggest opportunity to cut production costs and to increase productivity. Investigate what it can do for you. Let Wayne engineers help you develop the proper equipment to assure better handling of material in your plant. There's a Wayne Hydraulic Lift for every requirement. Write for more information.

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AIR COMPRESSORS • HOSE REELS FOR OIL, GREASE, WATER, AIR • BULK PUMPS

ALL TRACK LUMBER YARD . . .

(Continued from page 35)

widely, this covered structure prevents lumber from becoming water-soaked during periods of extensive rain.

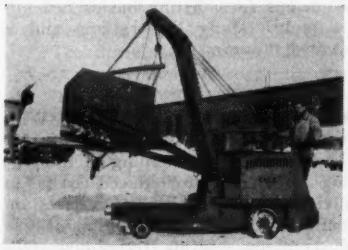
A third transfer car in Area 6, also electrically operated and equipped with a power winch and ram, pulls flats from the shed and rams them into the adjoining box shop. Its platform is a little more than twice the size of the other two transfer cars. The reason: before it can propel a loaded flat into the shop it must first remove an empty one. Consequently its bed contains two parallel tracks, as shown.

Positioning at the Saws

The box shop has five saw beds with hydraulic elevating platforms in front of each. The loaded flat is rammed onto rails on the elevator platform, which is lowered and raised so the level of the lumber is always the same as the saw (lumber is ordinarly stacked to a height of 12 ft. on the flats). This positioning equipment has eliminated the strain of bending and reaching on the part of the operator, and makes the task of feeding the saws, one of merely sliding.

The success of this "mobile lumber yard" is evidenced by the fact that sufficient boxes have always been on hand to take care of current glass production.

HOW A CRANE TRUCK REMOVES SNOW—Here's a method of removing snow from plant yards, area-ways, shipping docks, etc., which eliminates special shoveling crews and affords another

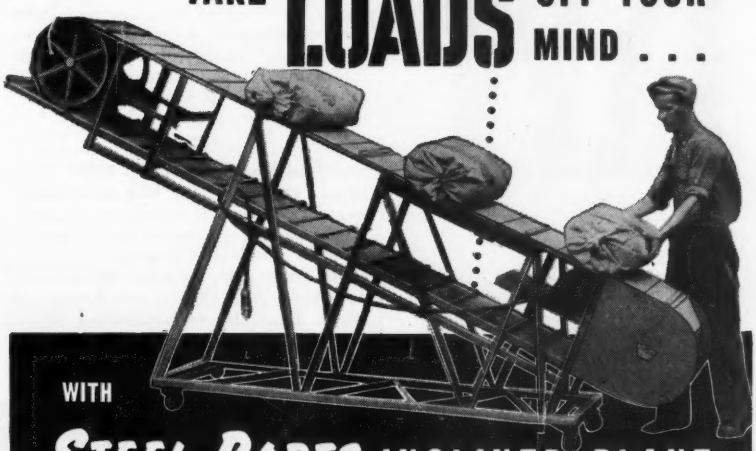


use for existing plant equipment, in this case, a crane truck. The snow shoveling attachment comprises (1) a large welded-steel scoop, and (2) a rig for mounting a scoop to the truck. The rigging comprises a structural-steel "A"-shaped element, two lengths of chain, and a piece of iron pipe. The "A"-shaped element is pinned, at the narrow end, to the base of the boom of the crane truck. The scoop is pinned between the legs of the "A". The chain, with the pipe used as a spreader, supports the "A" structure and scoop from the top of the boom. In operation, the boom of the truck is lowered until the scoop rests on the ground whence the truck moves forward until the scoop fills with snow. The boom is then lifted to raise the bin, and the truck swings or transports the load to the dumping area. To dump, the crane-hook is engaged with an eye welded to the back of the bin, and the hook is raised. This simple mechanism is quickly attached and detached as required. In addition to its application for snow removal, the attachment can also be used to handle sand, gravel, coal, earth, waste, and other bulk materials. — Courtesy Yale & Towne Mfg. Co.

Better, Bigger Directory

Many improved features are incorporated in the 1949-1950 FLOW Directory. More definitions and sketches; revisions for easier and more complete reference. Copies are $5.00 each.

TAKE LOADS OFF YOUR MIND . . .



WITH STEEL-PARTS INCLINED PLANE STEEL BELT CONVEYOR . . . .

✓ STEP UP HANDLING!
✓ SAVE VALUABLE SPACE!
✓ REDUCE WASTE!

• Solve each specific materials handling problem with the specific STEEL-PARTS steel belt conveyor pre-engineered to that need. The STEEL-PARTS Inclined Plane model shown here is ideal where height of elevation is a pre-determined factor. Raise production efficiency — lower unit handling cost — reduce waste — save operating space with flexible, sagless STEEL-PARTS steel belt conveyors. Tear out — fill in — and drop the coupon below in today's mail.

Portable or Stationary

STEEL-PARTS Inclined Plane Conveyor is available in a stationary unit or with rollers for applications where portability is required.

STEEL-PARTS MANUFACTURING CO.
4634 West Harrison Street
Chicago, Ill.
DIVISION OF THE BLACKSTONE MANUFACTURING CO.

MAIL THIS COUPON TODAY

STEEL-PARTS MFG. CO.
4630 West Harrison St., Chicago, Ill.

☐ Please send me complete information including engineering data and specifications on your Steel-Belt Conveyors.

☐ Please have your representative call to discuss our specific materials handling problems.

NAME_____ POSITION_____

FIRM_____ ADDRESS_____

CITY_____ STATE_____

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KW

Always **operating at** *top* **electrical efficiency—that's the KW Perpetual Power Plan!**

KW! Built to deliver *new*-battery performance under severe—and *continually* severe—conditions! That's why it's a favorite *railroad* battery—and why more materials handling men are welcoming this rugged KW!

There is no "price" battery in the KW line! KW sells, not batteries but peak electrical efficiency at a guaranteed-in-advance cost!

K. W. BATTERY COMPANY, INC.

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FLOW DIGEST

The subject matter contained in each of the following digests was obtained from the magazine to which we give credit below.

Canadian Packaging, March 1950. "Consumer Demand For Bottled Vinegar Leads to Special New High Speed Packing Line Installation", page 40. Consumer trend from vinegar in barrels to smaller glass containers influenced installation of high speed automatic machinery at this plant. Seventy 12-oz. or 24-oz. bottles are filled each minute. Capping and labeling equipment was installed to equal filling capacity. Corrugated shipping containers are automatically sealed. Conveyor sections in warehouse are linked for shipping to any of three exits or for cross-floor movement.

The Tool Engineer, March 1950. "Material Handling in Manufacturing", page 22. A general discussion of material handling as applied to movement between machines. Positioning equipment, illustrated, includes boxes, channels, conveyors, stands, tote boxes and trays. Examples of positioning equipment designed for certain products and types of machines. A turntable with trays is foot-operated and used for high volume bulky products in a limited working area.

Food Processing, March, 1950. "Up-To-Ceiling Storing Doubles Storage Space", page 22. Reduced operating costs amortized new pallet and high lift trucks in four months. A multi-story building complicated handling, storage. Pallet loads are taken from dock to elevator, picked off and stacked on upper floors with a high-lift truck. Warehouse space was increased 100 per cent.

Power Generation, January 1950. "Chutes, Feeders, Gates, Grids and Hoppers for Coal Handling Systems", page 70. Problems in developing coal handling and storage layout for steam plant. Difficulties of flow of material in chutes, also action of coal in silos and bunkers. The design of track hoppers and kinds of bunker gates to use.

Industry & Power, March 1950. "Conveyor Belt Connects Old and New Rock Deposits", page 106. How a 36-in.-wide belt connects a deposit of granite rock and sand with the plant, 2264 ft. away. The belt is 4714 ft. long, carries 1000 tons per hour and has a lift of 50 ft. The conveyor travels 550 FPM and passes through tunnels under a public highway and company owned railroad tracks. At the discharge end, a cantilever design head pulley.

Pit & Quarry, March 1950. "Big Limestone Quarry Shuts Off Shut-Downs with Metal Detector", page 65. Screening equipment, jaw crushers, secondary crushing equipment and conveyors are protected from tramp metal by a metal detector. Conveyors carry partly crushed stone 600 ft. between processing stations. The detector stops the belt, a red light flashes and white lime is automatically discharged onto the material which contains the metal. An average of only 30 seconds elapses between shut off and resumption to travel. Also:

"Quarry Operator Adopts Unique Blasting Methods to Up Yield, Reduce Hazards", page 60. The use of crawler mounted cranes equipped with 2½-cu. yd. shovels and "skullcrackers". The shovel equipped models clear ledges after blasting, cast stone onto the quarry floor. Skullcrackers perform nearly all secondary crushing duties.

The Timberman, March 1950. "Specializing In Long Lengths", page 46. Handling at a lumber mill which specializes in logs up to 30 in. in diameter, finished lumber 20 ft. to 40 ft. in length. A fork truck carries and stacks logs on log skids, designed for fork truck entry. This facilitates storage by type. A conveyor transports waste material from the mill to the burner.

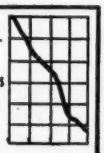
Iron Age, March 2, 1950. "Production Castings—30-Ton Engine Bases", page 81. How a foundry handles molds that exceed its crane capacity and drying oven size. In final production set-up a mold was made in two days. Overhead cranes set body cores, spacer and are used for ramming the pit. Pairs of "I" beams form lifting beams beneath the mold. Many illustrations and a detailed diagram.

Wood, March 1950. "Packaging With Profit with Steel Strapping", page 16. The use of steel strapping in the logging industry for reduced costs in moving logs to the mill. Charts on saving; discussion on selection of size of strapping, rafting techniques, features of strapping. Progressive illustrations of strapping steps. Case studies and cost figures.

There's no such animal

as an unbreakable pallet!

Yes — Even American Pallets sometimes break and that's precisely where American REPAIR LUMBER SERVICE comes in — serving you with pre-cut, pre-drilled, air-dryed Pallet Repair hardwood — stocked at our Hoboken factory and warehouse and other locations throughout the East — ready for IMMEDIATE DELIVERY by truck in pallet-load lots.



MAINTENANCE DEPT. REPORTS ON PALLET REPAIR COSTS SHOW MARKED DIP.

Wherever American Pallet Repair Lumber has been used — cost of maintenance have gone down. Pre-cut, Pre-drilled, inexpensive — that's your key to cutting costs with American.

utility the first essential

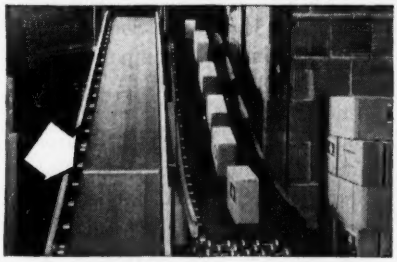
AMERICAN PALLET CORP.

165 Broadway, New York, New York

write for our Catalogue of American Pallets

ALLIGATOR®

CONVEYOR BELT LACING



*Every Tooth A Vise**

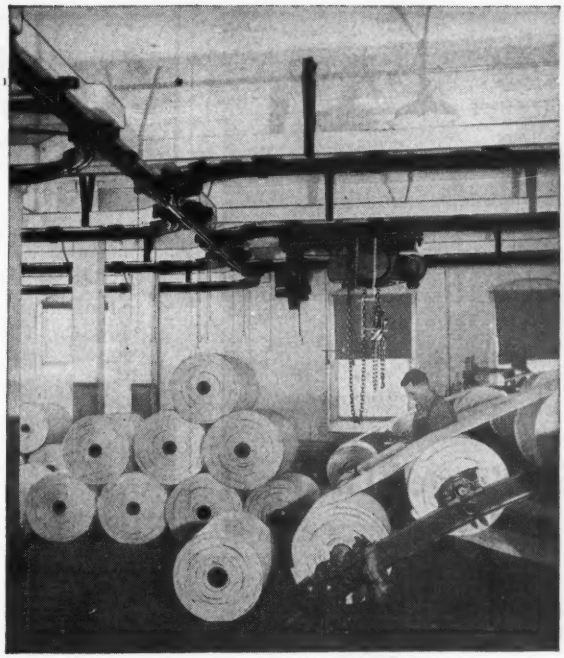
in Long Continuous Lengths for Conveyor Belts . . . . .

- ★ Excellent for Package Conveyors, Portable Loaders, Trenching and Ditching Machines, etc.
- ★ In canneries where corrosion or rust is a problem specify Alligator made of Monel.
- ★ For magnetic separators or anti-sparking specify Alligator made of Everdur.
- ★ Separable and smooth on both sides.
- ★ 12 sizes. For belts from 1/16" to 5/8" thick— and *any width.*

Order from Your Supply House. Ask for Bulletin A-60.

FLEXIBLE STEEL LACING CO. 4702 Lexington St., Chicago 44, Ill.

JUST A HAMMER TO APPLY IT



CARRY THE COBURN WAY . . . EASIER, SAFER, FASTER, MORE ECONOMICAL

COBURN

CONVEYING EQUIPMENT

You can lower costs, speed production and reduce accident hazards with Coburn . . . the original enclosed overhead monorail. If your processing operations call for moving or lifting of loads up to 3000 lbs., Coburn can eliminate many "back breaking" problems.

The Sectional design of Coburn Enclosed Overhead Monorail permits easy installation, rearrangement or extension, as required. It can be used with hand or electric hoist; does not obstruct floor space; requires very little headroom; and permits easy spotting of work directly over machines.

Write today for our catalog showing full details on Enclosed Track, Bracket-Type Jib Cranes, Travelling Cranes and Monorail installations.

Engineering help available without obligation.

COBURN PRODUCTS DEPARTMENT

THE COLORADO FUEL AND IRON CORP.
WICKWIRE SPENCER STEEL DIVISION

CF&I

Executive Office—500 Fifth Avenue, New York 18, N. Y.
Sales Engineering—56 Sterling Street, Clinton, Mass.

For Rugged Lifting at Low Maintenance Cost You can't equal a KELLER *Air* HOIST

Lifting the heavy housing assembly shown in the picture will be easy for that workman . . . a matter of seconds . . . without strain or fatigue. You see, he's lifting with the Keller one-man Air Hoist.

His employer, Peerless Pump Division, Food Machinery and Chemical Corporation, says "portability, low hook-to-hook dimensions, and variable speed features make the Keller a utility tool of unusual adaptability in our assembly lines."

This commendation is a typical one from factories, shipping rooms, tool rooms and foundries using Keller Air Hoists for tough lifting. They find it's lighter than other hoists of similar capacities, can be carried, set up, used by one man . . . even where head-room and wall-clearance is limited. Maintenance cost is at a low, low level!

Just attach the "handful of power" to an air line. Hoists of 500, 1000 or 2000 lb capacities lift at the rate of 17 ft a minute; 300 lbs at 75 ft a minute.

Today's business "partnership" between management and men welcomes fast equipment to lift men's burdens, turn maintenance debits into credits. Our Air Hoist folder tells you how the Keller Hoist does just that! It also gives you complete ordering data so that you can order direct.

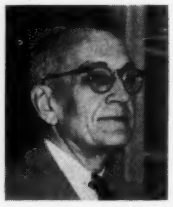
(Keller Air Hoists are sold and serviced through our branch offices throughout the United States or direct from the factory.)

KELLER
Pneumatic Tools

KELLER TOOL CO., GRAND HAVEN, MICH.

INSTITUTE AND ASSOCIATION CHAPTER ACTIVITIES

NORRIS W. EMBRY of Evanston, Ill., president of the General Box Co., Chicago, was elected president of the Wirebound Box Manufacturers Association at its annual meeting. He succeeds Ramsey Simmons of the Elberta Crate and Box Co., Bainbridge, Ga., who had served two one-year terms. Simmons was elected vice-president for the next year. John R. Miller Jr., of the T. R. Miller Mill Co., Brewton, Ala., was elected a director to succeed his father, the late John R. Miller. George Kubes of the American Box Co., Cleveland, and Shelley Schuster of the Great Southern Box Co., New Orleans, were newly elected as directors. The rest of the directors who were reelected are: J. B. Adkins, Adkins Manufacturing Co., Gainesville, Fla.; E. S. Barnhill, Indianapolis Wirebound Box Co., Indianapolis; Stanley C. Craven, California Barrel Co., San Francisco; D. R. Gooding, Wisconsin Box Co., Wausau, Wis.; F. J. Martin Jr., Martin Brothers Box Co., Toledo; R. F. Miles, Rathborne, Hair & Ridgway Co., Chicago; L. O. Crosby, Crosby Forest Products Co., Picayune, Miss.; A. L. Whiton, Chicago Mill and Lumber Co., Chicago; Embry, and Simmons.



Norris W. Embry

THE March meeting of the Northeastern Ohio Chapter (Cleveland), Material Handling Institute, Inc., was highlighted by a plant visit to the Baker-Raulang Co. At the evening meeting, G. B. Davis, sales manager, and R. H. Davies, vice president in charge of engineering of the company, addressed the 79 members and guests. Davies covered some of the problems in designing and developing different fork truck models. Variation in building design, floor loadings, elevator capacities and desired functional uses necessitate a wide range of types of vehicles. Davies also discussed the handling of materials in the Baker-Raulang plant.

THE Eastern Division of the Society of Industrial Packaging and Material Handling Engineers recently held a meeting in Philadelphia. W. Gordon Bennett of the Anaconda Mining Co. is the division's president. Herbert M. Lapidus, chief of packaging, U. S. Naval Aircraft Factory, spoke on "The Role of Preservation and Packaging in Aviation". James M. Needham, packaging engineer, Angier Corp., discussed "The Story of V.P.I."

THE organization of the New York Chapter of The American Material Handling Society has been announced. Temporary officers elected were H. C. Bischoff, American Can Co., chairman; A. A. Burkhardt, N. Y. Central Railroad, vice chairman; B. W. Hupp, Drake, Startzman, Sheahan, Barclay, Inc., treasurer; and F. D. McCann, Hertner Electric Co., secretary. The publicity committee of the chapter consists of J. W. Weigt, Electric Storage Battery Co., C. W. Meldram, Bond Industrial Equipment, and H. W. Schonau, Automatic Transportation Co.

THE Syracuse Chapter of the AMHS heard W. J. Silich, manager of station service for the Delaware, Lackawanna & Western Railroad Co. at its March meeting. Silich spoke on "Handling of Material

from Car to Boatside". In 1944, Silich went to Hoboken, N. J., where he was in charge of all import and export freight handling in the port of New York. This differs from other major ports since the greater portion of the tonnage handled by rail breaks bulk at the lighterage stations of the various railroads serving the harbor and is transferred to barges or lighters which are subsequently towed to shipside.

FRANK C. WIER, Timken Roller Bearing Co., addressed the April meeting of the Detroit Chapter, American Material Handling Society. His topic was "Material Handling In A Tube Mill". Officers of the chapter include C. C. Whiteford, Ford Motor Co., president; F. A. Dahlquist, Penn Salt Mfg. Co., vice president; R. N. Burgess, General Electric Co., secretary; Eugene J. Salay, Ford Motor Co., treasurer. W. J. Dernberger is chairman of the publicity and magazine committee.

"FACTORS To Be Considered When Selecting Material Handling Equipment" was the subject of a talk by Robert C. Brady to the Niagara Frontier Chapter (Buffalo), of the AMHS. Slides were shown.

GEORGE B. HEDDENDORF, director, Babson Institute of Business Administration, will address the members of the Material Handling Society of Philadelphia at its May 19 meeting. It will be held at the Poor Richard Club. Heddendorf was formerly associated with International Business Machines Corp. He joined Babson in 1945. He has also served as a consultant to many industrial companies on their accounting and management problems.

1949-50 FLOW DIRECTORY

Copies of the revised Directory are available at $5 each. An invaluable manual for the material handling engineer, production executive, and purchasing agent.

FLOOR TRUCKS

STANDARD AND SPECIAL

WHEELS: Metal - Rubber - Pneumatic

KEEP LOADS ALIVE

MEMBER CASTER AND FLOOR TRUCK MANUFACTURERS' ASSOCIATION

We take pride in our product and guarantee satisfactory performance and sturdy, long time operation under the most severe use. Agencies in most principal cities. Catalog gladly furnished upon request. Repeat orders testify to the efficiency of our trucks.

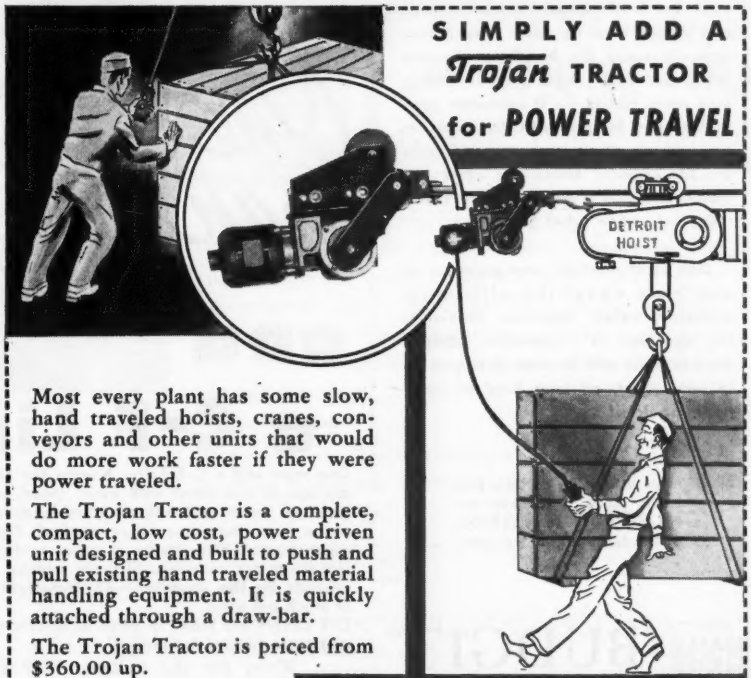
MAIN OFFICE AND FACTORY

ORANGEVILLE MFG. CO.

"Established 1879"

ORANGEVILLE 1, PENNA.

FLOOR TRUCKS ORANGEVILLE



SIMPLY ADD A *Trojan* TRACTOR for POWER TRAVEL

Most every plant has some slow, hand traveled hoists, cranes, conveyors and other units that would do more work faster if they were power traveled.

The Trojan Tractor is a complete, compact, low cost, power driven unit designed and built to push and pull existing hand traveled material handling equipment. It is quickly attached through a draw-bar.

The Trojan Tractor is priced from $360.00 up.

Bulletin 810 will give you further information.

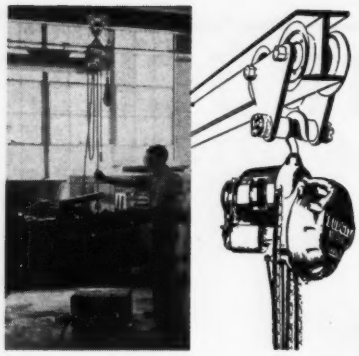
Fill in your company name, address, and send us this advertisement for a copy.

DETROIT HOIST & MACHINE COMPANY

8226 MORROW ST. • DETROIT 11, MICH.

Company_____

Address_____



Make us prove our statements!

Call up our nearest distributor and ask him to bring over a portable 'Budgit' Electric Hoist. Then, make him prove every statement we've ever made about 'Budgit' Hoists by having him hang up our hoist, plug it into the nearest electric socket, and use it to lift your kind of loads.

Here's point one proved — 'Budgit' Hoist is a complete lifting unit in itself, ready for work the moment you unpack it. Point two — there are no installation costs, no accessories to buy! Let it lift several capacity loads and prove how its fast, easy lifting action permits the handling of more loads per hour than manual lifting. Two more points — it increases production and lowers operating costs — are proved. Have one of your workers lift capacity loads one after another. Ask him if he's tired. He'll say "No." Another point proved.

One after another, each point we've ever made about the efficiency, economy, safety features, time-saving qualities of a portable 'Budgit' Electric Hoist will be proved to you — in your plant, on your kind of load-handling jobs!

Made in sizes to lift 250, 500, 1,000, 2,000, and 4,000 lbs. Prices start at $119.00. Write for Bulletin No. 391.

MAXWELL MANNING MOORE TRADE MARK

'BUDGIT' *Hoists*

MANNING, MAXWELL & MOORE, INC.
MUSKEGON, MICHIGAN

Builders of 'Shaw-Box' Cranes, 'Budgit' and 'Load Lifter' Hoists and other lifting specialties. Makers of 'Ashcroft' Gauges, 'Hancock' Valves, 'Consolidated' Safety and Relief Valves, 'American' Industrial and 'Microsen' Electrical Instruments.

Wide Range of

WHEELS & CASTERS

- Solid Rubber or Metal Tread Wheels.
- Pneumatic Rubber Tired Wheels.
- Solid and Cushion Rubber Industrial Tires.
- Casters furnished with Wheels of all types in 200 to 4000 pound capacities.

Write today for full information.

Lansing **INDUSTRIAL SALES COMPANY**
Manufacturers and Distributors
LANSING 15 MICHIGAN

NEWS FROM THE SALES FIELD

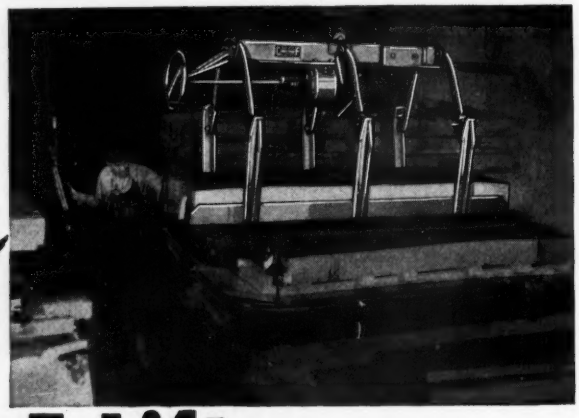
CLEM E. REIK, J. J. Walbeck and Chas. F. Yarham have established a distributing firm, Industrial Handling Associates, located at 1935 Euclid Ave., Cleveland. The company will represent the Moto-Truc Co., Cleveland, and the Crescent Truck Co., Lebanon, Pa., in the northeastern Ohio territory. Reik formerly represented the Automatic Transportation Co., Chicago, and prior to that was plant manager of the Hertner Electric Co., Cleveland. Walbeck represented Automatic in Akron and formerly was associated with the B. F. Goodrich Co. of that city. Yarham was associated with the Ohio Equipment Co. and the Euclid Road Machinery Co., both of Cleveland.

BRIDGE Machinery Co., 768 St. Paul St. West, Montreal, Canada: this firm has been appointed representative for Mercury Conveyor, Inc., Hillsdale, N. J. Its territory comprises all of the province of Quebec.

WHITING CORP., Harvey, Ill., has announced the appointment of four new distributors to handle its electric hoists. Wisner, Inc., Rockford, Ill.; Neff Equipment Co., Toledo, Ohio; Stone Supply Co., Inc., Houston, Tex-

(Turn to page 63)

One man **and a C-F Lifter...**



One man and a C-F Lifter handle the sheet steel stock in and out of storage in this plant with ease, speed and economy. C-F Lifters can pick up, carry and unload more loads per hour using less man and crane time than any other method. Note how closely a C-F Lifter piles sheets—this results in great savings in storage space. Jaw adjustments for carrying different widths of sheets are made in a few seconds by the operator—an important feature when varying sizes of stock are used.
C-F Lifters are made in sizes to handle from 2 to 60 tons in standard and semi-special designs.

Write for the bulletin "C-F Lifters." It illustrates the many cost saving advantages of these lifters.

CULLEN-FRIESTEDT CO.
1320 S. Kilbourn Ave., Chicago 23, Ill.

NINE GOOD REASONS . . .

(Continued from page 22)

systematic or progressive order picking was a later refinement which was developed in light of the modernized operation.

Processing of customer orders is likewise geared to it. When orders are received in the main office, they are routed to the shipping clerk, then to the dispatching desk. Here stencils are cut and tags made. These are clipped to each order and placed in a box for pickup by the stock selection men. Thus all necessary shipping information and tools are attached to each order. These small details have aided the new system to a point where they may be said to have assured its outstanding success. For that reason they are emphasized here—they belong with the "important trifles" that can spell the difference between the mediocre and a successful operation.

Company officials are fully agreed on the nine major improvements which are listed on the opening page of this article.

Tractor Trains. Walkie-Type Tractors

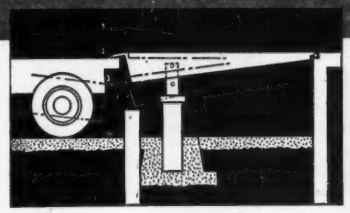
The following procedure is typical of the flow of cased goods from production to shipping. The full shipping containers are loaded from the case sealing machines on pallet-bearing trailers (two pallets per trailer). All pallets were standardized on 30"x42", which was found to be most efficient with regard to the various sizes of cartons. Six trailers are hooked up into a train for movement by industrial tractor to the warehouse, a distance of approximately 200 ft.

The loaded trailers are uncoupled in front of the elevator. With the use of a motorized walkie-type tractor the elevator operator pulls three of the trailers onto the car for delivery to the desired floor in the reserve storage area. The hand-guided tractor does not leave the elevator and is designed expressly for transferring trailers between floors. In the storage area, the loads are left in front of the elevator, where they are picked off and stacked by fork truck. Another walkie-type vehicle, a truck, is stationed in the floating stock area for rearranging pallet loads and similar tasks.

Sixteen five-gallon pails are placed on a pallet and handled and stored in the same way as are the cased goods. One pallet also holds two of the larger drums. These are stacked in the yard and handled with fork trucks.

Castered Equipment for Order Picking

Two types of order picking trucks are used for stock selection. Less than case lot orders are assembled on steel table trucks 30" wide by 59" long and 28" high. The 28" height was designed for convenient placing and removal of



Self-Leveling Ramp Speeds Truck Loading

Trucks, at your dock, load and unload 50% faster with this Globe hydraulic hinged ramp. It adjusts automatically to fit varying truck bed heights. Goods are wheeled into or out of trucks without hand lifting or labor delays. Sketch shows simple operation: 1) Ramp elevates to receive truck; 2) Ramp "lip" lowers to truck bed; 3) Ramp rides firmly on truck bed as load lightens or increases. Operates by air, air/oil, or motor pump unit.

Mail coupon for illustrated catalogue on this ramp, and many other Globe Materials Handling improvements.

MAIL COUPON NOW

GLOBE HOIST COMPANY
1000 E. Mermaid Lane
Philadelphia 18, Pa.

Please send new Catalog F550 showing illustrations specifications on Self-Leveling Ramp and other time-saving Globe Lifts, Ramps.

Company .....

Name ..... Title.....

Street..... City..... State.....

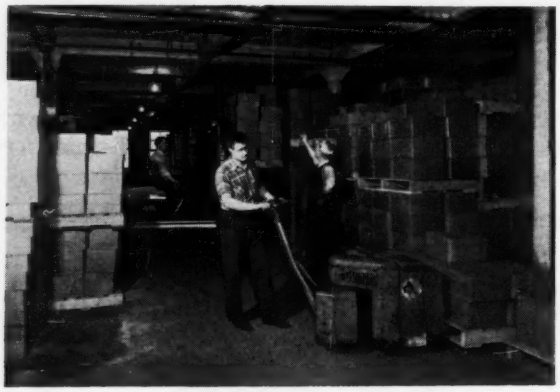
GLOBE HOIST COMPANY Des Moines 6, Iowa Philadelphia 18, Pa.

merchandise. It is felt that this vehicle has contributed to improved order assembly by reducing operator fatigue. Easy rolling is assured by two pneumatic tires and two solid rubber tires. The angle iron framework of the body is of welded construction.

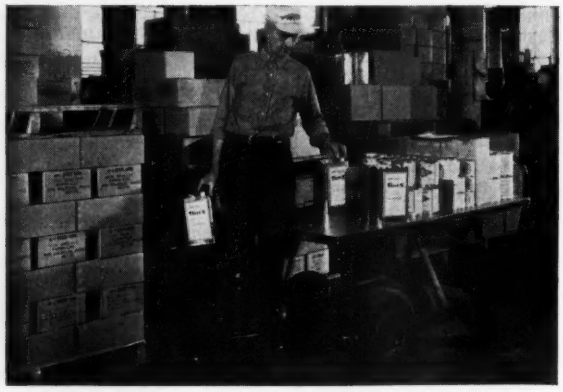
Case lot orders are assembled on 30″x49″ platform trucks. These are pallet bearing units from which the fork trucks pick off the loads in the shipping department.

The 60′x120′ shipping room has 11 overhead doors for highway vehicles at one side and several identical openings on the other to accommodate four rail cars. Adjacent to the shipping area is the bin storage and small-order shipping room. Orders for a few single cans are filled here and sent via parcel post. In this area is also the central charging station for the batteries that power the trucks and tractors. Data on this phase of the operation are given elsewhere in this article.

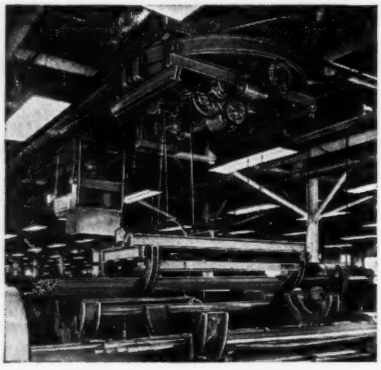
Pallet handling is a great factor in orderliness and good housekeeping. Orders are lined up behind designated doors, and each exit is marked with the name of a trucking company. A wide space cleared down the center of the room serves as the main traffic artery. Side aisles between the outgoing stacks are maintained to give fork trucks, tractors and castered vehicles free



FORK TRUCK stacks palletized goods in reserve stock storage. Walkie unit rearranges stacks.



STEEL TABLE TRUCKS for stock selection roll on two pneumatic and two solid rubber tires.

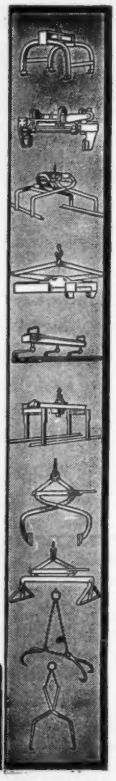


25% MORE Screw Machines In The Same Space!

Made possible by the use of Mansaver Grabs and a Louden overhead system in the screw machine department of a large, nationally known firm. Machines were placed closer together because aisle space required for floor trucking was eliminated. Many other savings were also obtained. Write for Bulletin No. 664.

COMPLETE YOUR CRANES WITH

MANSAVER GRABS



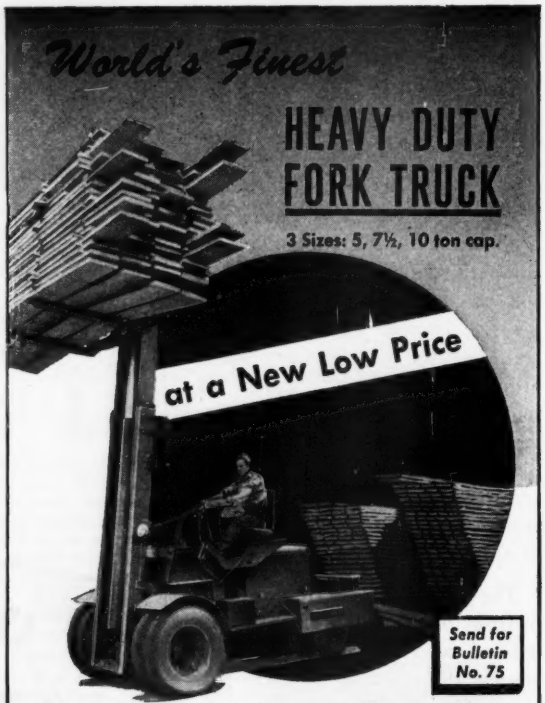
MANSAVER INDUSTRIES, INC., 3103 EAST ST., NEW HAVEN, CONN.

World's Finest

HEAVY DUTY FORK TRUCK

3 Sizes: 5, 7½, 10 ton cap.

at a New Low Price



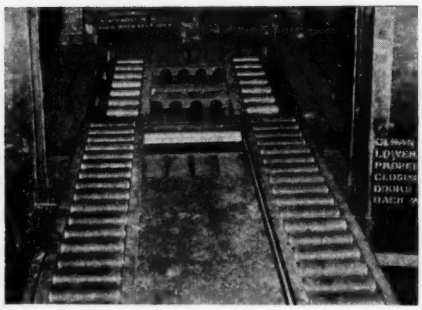
Send for Bulletin No. 75

Made by the Makers of KRANE KAR

SILENT HOIST & CRANE CO.

888 63rd ST., BROOKLYN 20, N. Y.

TROUBLED WITH PALLET HANDLING?



IF SO HERE IS YOUR ANSWER

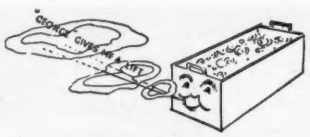
Ultimate **PALLET DOLLIES & PALLET GRAVITY CONVEYOR**

The Pallet Dolly takes over in Pallet Handling where the Fork Truck ends (at freightcar door). Let us show you how the Pallet Dolly can help.

Write now for Bulletin RTD-1A

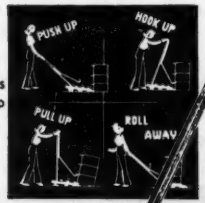
ISLAND EQUIPMENT CORP.

27-01 Bridge Plaza No. Long Island City 1, N. Y.



Not one single case of "TOTE" irritation *due to using "George"***

"George," the almost automatic roller truck, safely, easily hauls tote boxes, prevents employee strains. Leverage handle with hook glides load over upper set of rolls, holds load firmly. Lower rolls carry truck to destination. Long service life, brightly painted to prevent tripping, low cost. Buy one . . . you'll want many more.



*With apologies to you-know-who

Write for free Folder L
ROLOCK Incorporated
Fairfield, Connecticut

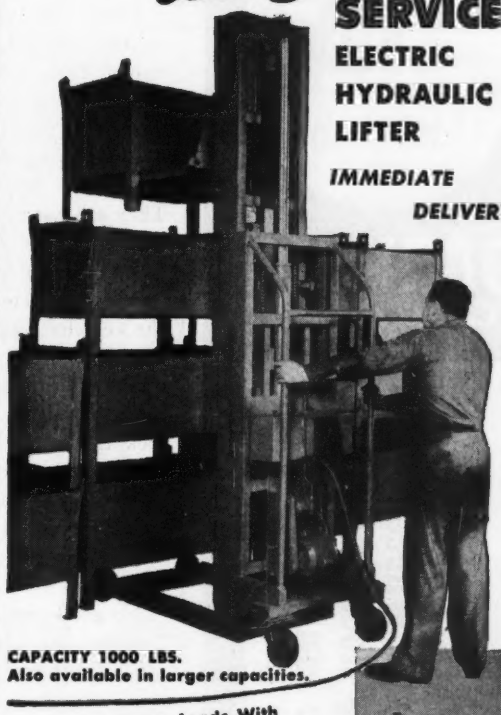
LET *"George"* DO IT

3RG50

new improved

SERVICE ELECTRIC HYDRAULIC LIFTER

IMMEDIATE DELIVERY



CAPACITY 1000 LBS.
Also available in larger capacities.

Handles Heavy Loads With Speed, Ease and Safety

With the Service Electric Hydraulic Lifter any light socket in your plant is a power source for lifting up to 1000 lbs. . . . as high as 8' 8". . . by simply pressing a button. This is the practical equipment to *lower* handling costs as you *lift* heavy loads more efficiently . . . to make the handling of *dangerous* loads easier and *safer* for your men.

With twin roller lifting chains, either of which will safely hold the load . . . push button control . . . safety valve to prevent overloading . . . all the other features listed here . . . this new better Service Electric Hydraulic Lifter deserves a spot in your plant.

Send for Descriptive Circular.

Features Like These Will Cut Your Handling Costs

- Lifting speed 10 feet per minute.
- Lowering speed 30 feet per minute.
- Platform lift 8' 8".
- Height collapsed (to clear short doorways) 6' 5".
- Height extended 10' 6".
- Platform size 36" x 30"—Larger sizes available.

Cost-Saving Service Materials Handling Products

Metowlift Gas-Powered Hydraulic Lift Truck | Service Hand Lifter | Service Liftable | Service Electric Hydraulic Lifter | Service Hydraulic Leverlift | Service Leveler

SERVICE CASTER & TRUCK CORP.

INDOOR MILLS Made, Stocked and Serviced

Executive Offices: Albion, Michigan
Plants at Albion, Michigan and Somerville 43, Mass.
SEE YOUR CLASSIFIED TELEPHONE DIRECTORY FOR NEAREST DISTRIBUTOR

DARNELL
Casters & Wheels

For light, medium or heavy duty service Darnell Casters and Wheels are dependable — saving floors, equipment, money, time and temper.

Free DARNELL MANUAL

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36 N. CLINTON, CHICAGO 6, ILL.

access. The complete accessibility of loads and the absence of obstructing shipments makes for fast movement of material to and from the floor.

After the orders have been double checked, the stencil is removed from the order sheet and the shipment is stenciled. Stencils are always filed for future use. Tags accompanying orders are here also affixed to the five-gallon pails. They are not used for bookkeeping purposes.

All straight truck and rail car loads are assembled at night and the vehicles loaded the next morning. The usual practice is to spot highway trailers and rail cars at the door late in the afternoon and pick them up the following noon. It should be noted that outbound carriers to be loaded with only one or two types of merchandise are loaded directly from the floating stock area by fork trucks.

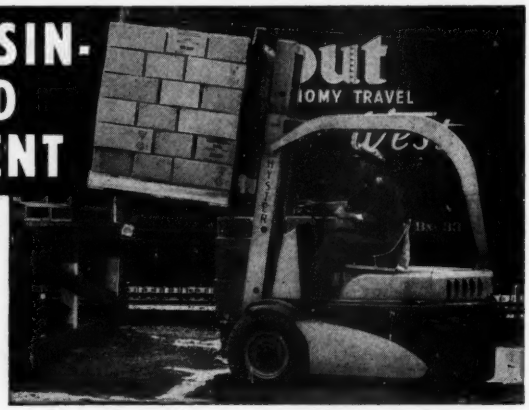
No goods are shipped on pallets because no provision has been made for the return of the empties. Fork trucks deliver the goods to the point of stacking inside the carriers. If the roof of a highway trailer does not offer sufficient clearance for the mast of the fork truck, the pallet loads are spotted on platform trucks and thus moved to the loading operators.

While the mechanized and systematized project has paid off thus far with operating improvements of a far-reaching nature, company officials are alert to the possibilities of further improvements of details. The numerical stock arrangement and order selection method was one of those "later refinements" which turned out to be of major importance to the entire mechanized operation.

In conclusion, it is desired to emphasize that, aside from the substantial gains obtained in the departments directly affected, the raw material storage and manufacturing departments have also benefited markedly from the additional space that became available to them.

WISCONSIN-POWERED EQUIPMENT

Keeps Things Moving!



This Model "40" Hyster Lift Truck, powered by a Model VF-4 Wisconsin V-type 4-cylinder air-cooled engine, is stacking boxed goods on RR. loading platform . . . working on soft gravel ground.

The Hyster Company, with factories in Portland, Ore., Peoria and Danville, Ill., is one of a number of leading manufacturers of material handling equipment who can provide outstanding examples of improved efficiency and lowered costs on a great variety of applications . . . through the use of Wisconsin Heavy-Duty Air-Cooled Engines.

Because of their compact design, freedom from cooling problems and heavy-duty serviceability, Wisconsin Engines have much to recommend them for material handling service. Like many others, you may find it possible to reduce both equipment and handling costs and increase the productive capacity of workers through effective applications of Wisconsin Engine Power. Single cylinder, two cylinder and four cylinder types, in a complete power range from 3 to 30 hp.

Specify "Wisconsin Power" for your material handling equipment.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 14, WISCONSIN

ON THE PALLET . . .

(Continued from page 42)

fields of maintenance led the conference, which was attended by about 8000. The two volumes comprise 278 pages, and include 47 pages of tables, diagrams, illustrations, graphs and charts. 554 questions submitted by the audience are answered in the second volume. The books are available from Clapp & Poliak, Inc., 341 Madison Ave., New York 17, N.Y. Price for both, postpaid, is $2.

A MANIPULATION-PROOF combination lock, one that would stump the fictional Jimmy Valentine himself, has been incorporated into the new line of Remington Rand Safe-Files. The lock, manufactured by Sargent & Greenleaf of Rochester, N. Y., completely eliminates the tiny but tell-tale "click" in the tumblers by which a smart manipulator using a stethoscope can often feel out a combination sequence. Described as the first revolutionary departure in locksmithing since the combination principle was developed some 75 years ago, the new device is the invention of Harry C. Miller, Washington, D. C. lock expert. The lock is encased in a highly-tempered steel box, providing further security by thwarting attempts at drilling from any angle.

For Your Material Handling Needs

Use SPEEDWAYS Low Cost,

Labor-Saving Conveyors

Speedways Wheel Conveyors
Available in 5 and 10 ft. straight lengths. (45° and 90° sections also standard). Easily hooked up without tools. 12"-15"-18" standard widths. 8, 10, or more wheels per foot. Light weight, sturdily built portable. For moving packages, cartons, etc.

SpeedTUBE (Roller) Conveyors
Built in 5' and 10' sections. (45° and 90° sections standard). Easily hooked up without tools. 12", 15", 18" standard widths. Roller spacing from 3" to 12". Lightweight, sturdy, portable, for moving irregularly shaped or nonpackaged products.

SpeedLIFT
Portable endless belt conveyor for moving from one level to another. Standard lengths 10', 12', 15'. Elevations from 18" to 130". Standard belt width 14". Capacity 500# in horizontal position, 300# at 30° angle. Electric motor operated.

PermaLIFT
Permanent Floor to Floor Conveyors. Standard Models in lengths from 15' to 43'. To lift from 8' to 20'. Standard Belt Width 14".

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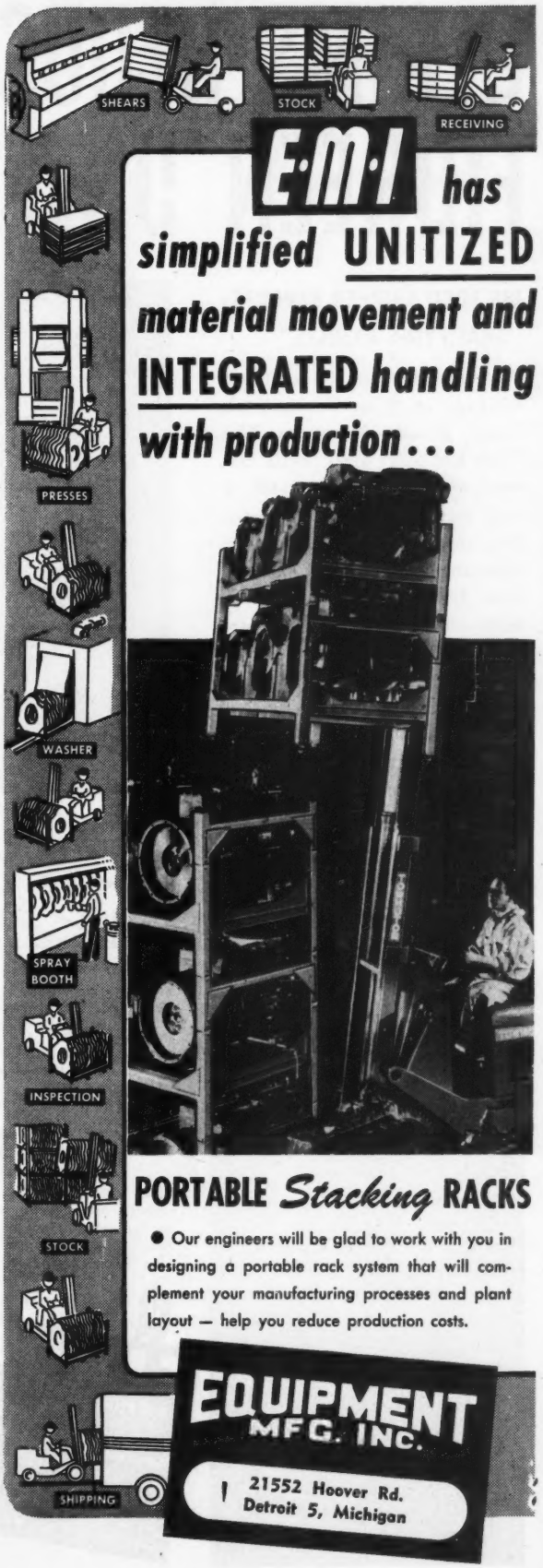
Represented and carried in stock by Materials Handling Engineers in principal cities in U. S., and many foreign countries. Consult telephone directory. Also manufactured in Canada, Union of South Africa.



E-M-I has simplified UNITIZED material movement and INTEGRATED handling with production . . .

PORTABLE *Stacking* RACKS

● Our engineers will be glad to work with you in designing a portable rack system that will complement your manufacturing processes and plant layout — help you reduce production costs.

EQUIPMENT MFG. INC.
21552 Hoover Rd.
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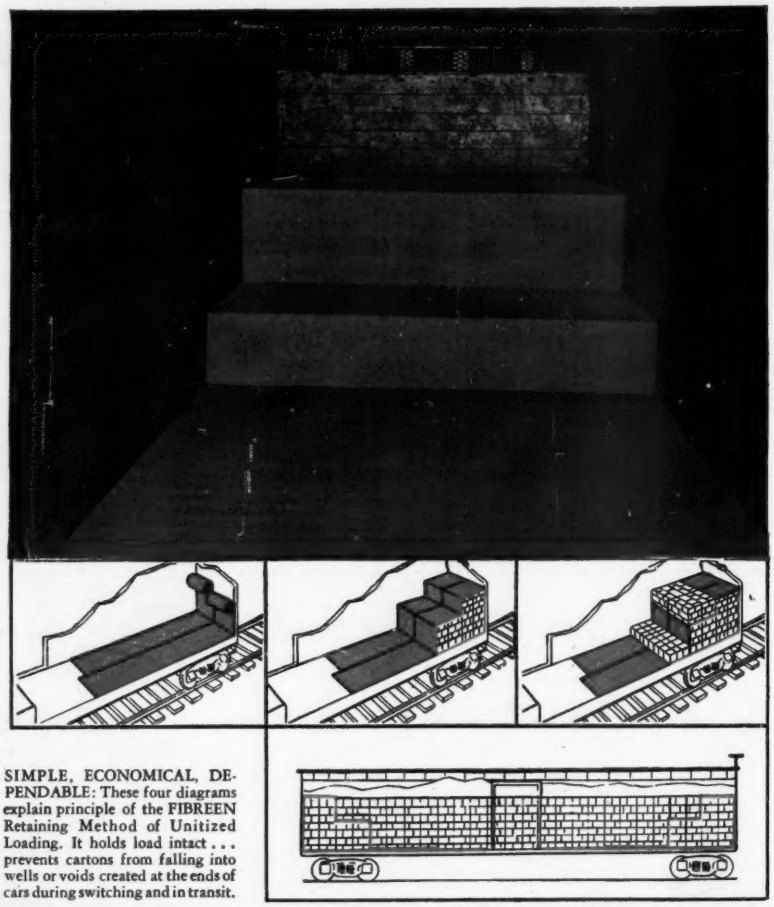
CLAIMS REDUCED 75% WITH FIBREEN UNITIZED LOADING

BIG FOOD SHIPPER REPORTS: "GRATIFYING RESULTS"

"On a movement of 108 cars (from Chicago to West Coast, Utah, Texas, Florida, Minnesota, New York and other areas north, east, west, and south), our records reveal that with FIBREEN protection, our damage prior to reconditioning averaged *less than* 3¼ *cases per car* . . . our claims have been reduced 75% since we adopted FIBREEN protection" . . . says the General Traffic Manager of one of America's foremost food canners. In some cars, loads had shifted 3" to 18" at the ends, but even then, the loads were intact . . . there was no tumbling of cartons into end-wells . . . the tough, non-stretching, waterproof FIBREEN proved strong enough to withstand the terrific strain and hold the loads.



SIMPLE, ECONOMICAL, DEPENDABLE: These four diagrams explain principle of the FIBREEN Retaining Method of Unitized Loading. It holds load intact . . . prevents cartons from falling into wells or voids created at the ends of cars during switching and in transit.

HERE'S PROOF! Not a Single Carton Dropped in Well

Photo shows one end of a car in which load had shifted about 10 inches. See how the FIBREEN held the load intact. No break in the retaining paper, no tumbling of cartons into end-well, no damage to cans. Reports from 92 consignees agreed on success of FIBREEN Method of Unitized Loading. Would you like to discuss your specific carloading problems with SISALKRAFT men experienced in this new method? Phone, wire or write: The SISALKRAFT Co., Chicago 6, Ill., New York 17, N. Y., San Francisco 5, Calif.

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SISAL-REINFORCED WATERPROOF PAPER
. . . a product of **The SISALKRAFT Co.**
Manufacturers of SISALTAPE, FIBREEN, SISALKRAFT, SISALATION, COPPER ARMORED SISALKRAFT
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NEW YORK 17 • SAN FRANCISCO 5

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The SISALKRAFT Co., Dept. F-5, Chicago 6, Ill.
Please send details on the FIBREEN Method of Unitized Loading, and sample of FIBREEN reinforced waterproof paper. We ship about.....cars per day.

Your Name.....
Firm Name.....
Street Address.....
City, Zone and State.....

PACKAGING MECHANICS SECTION

A regular monthly section in which are presented solutions to the problems of efficient filling and handling the boxes, cartons, bags, bottles, cases, etc., used in commerce and industry.

CONTENTS

SMALLEST POSSIBLE CONTAINER—FOR THE JEEP. With a rated capacity of 50 Jeeps per hour, this line is said to be the fastest U. S. automotive set-up of its kind. More important, extremely well engineered packing techniques fit components into the body, making for small box size. The excellent practices developed for the Jeep are worth any packaging engineer's study. . . . 58

EFFICIENT PACKING FACILITATES ASSEMBLY. In many plants it is still not realized that piece-by-piece packing of Industrial items involves piece-by-piece unpacking. In the assembly line such duplication of effort can slow down production. This short example from the Control Division of the General Electric Co. offers proof that simplified packaging can be an important cost reducer. 60

Smallest Possible Container ...

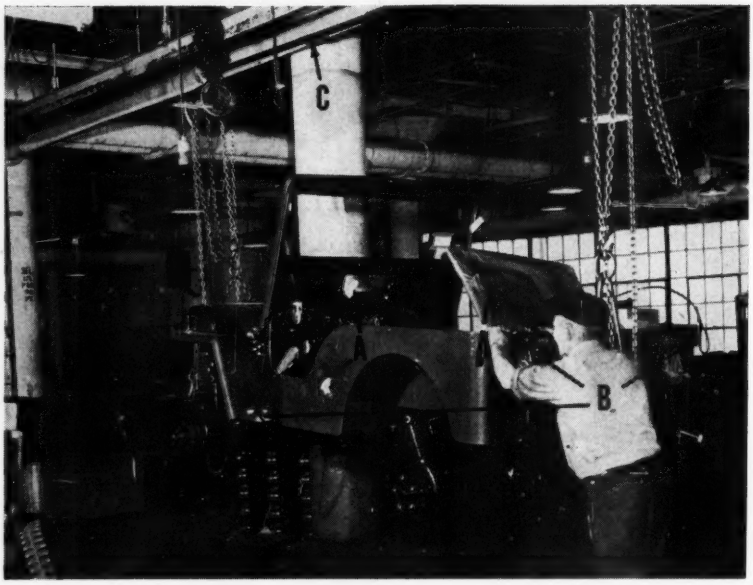
Fifty jeeps can be boxed for export shipment each hour. Note particularly that skillful placement of components within the contour of the vehicles minimizes overall container size, simplifies handling. Complicated internal bracing has been eliminated.

"USE the smallest possible container and keep the models as fully assembled as possible." These were the requirements which the Army set forth to Willys-Overland Motors, Inc., Toledo, for the export packing of jeeps during the early years of the war. These two factors were vital, especially since modern handling equipment was not always available overseas. Shipping nearly completed models, together with components and accessories in one box, was essential since inexperienced operators had to assemble the vehicles, in some instances as soon as they were uncrated, often under difficult field conditions. Also, the container had to be simple enough so the jeeps could be speedily packed and shipped to answer the urgent need for the equipment.

Exporting Problems

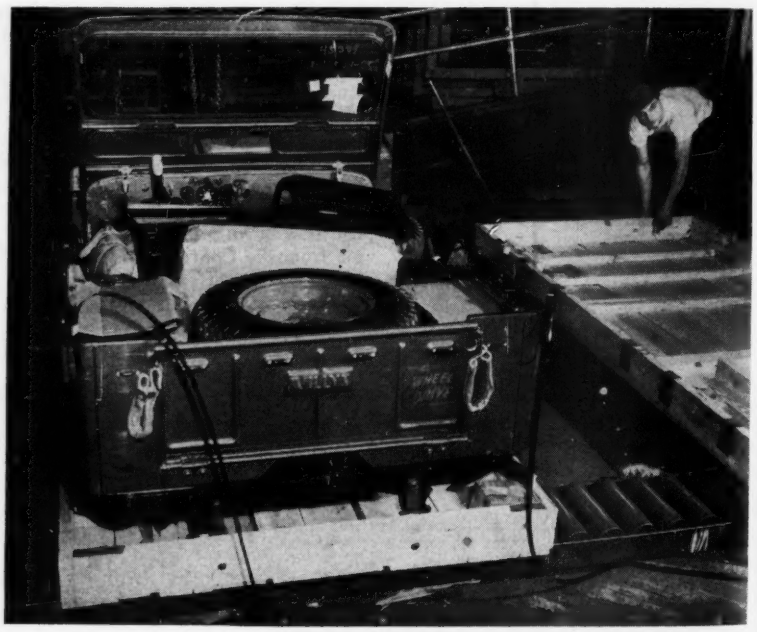
Most of the problems encountered in export shipping during the war are just as prevalent today. 1. Prolonged exposure of the containers to the elements; yet they must be designed so that air can reach the product to prevent molding. 2. Sturdy container construction since they are often stacked five high and more in the holds of ships. 3. Constant rocking of the boat. 4. Lack of modern handling equipment in many foreign countries.

What was needed was a container which would keep water out, let air in; one which would offer maximum protection and at the same time be simple in construction; and one which would contain a nearly

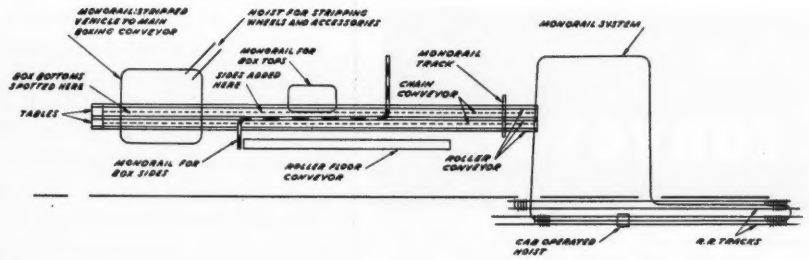


▲ **THIS JEEP** is ready for boxing. Note industrial tape (A), the steel strapping (B), and the spacer bar (C).

VEHICLE RESTS on four uprights nailed to the base. Tie-down straps anchor load to bottom of the box. ▼

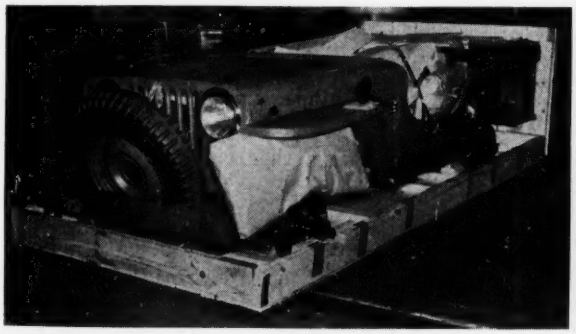


...for the Jeep

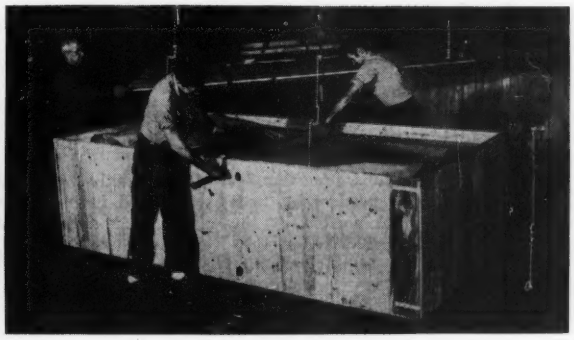


MONORAIL SYSTEM feeds box components to main line made up of gravity and powered conveyors. R. R. track layout in at lower right of the sketch.

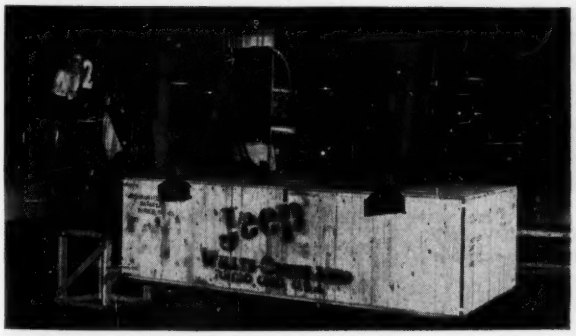
THE PLACING of components to conform with the contour of the jeep reduces the over-all box size.



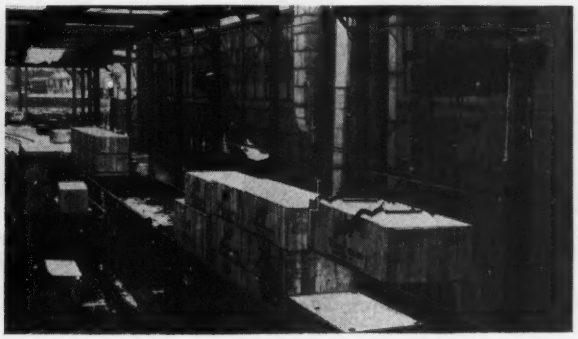
BOX TOP IS HANDLED with hoist and company-designed grab. Wax paper is laid across load.



CAB-OPERATED MONORAIL HOIST picks off outgoing cases. Box grabs are the friction type.



LOAD IS SPOTTED in gondola. Hoist may reverse its route or continue around closed circuit of overhead truck.



assembled jeep plus accessories, yet be very compact.

With these three sets of more or less conflicting requirements, the company adopted a solid wooden box which is still used today.

The box now used is 62" x 128" x 35" OD, with a total of 161 cu. ft. The strength of the container and the rigidity and defined contour of the vehicles makes complicated internal bracing unnecessary; consequently, the box may be built flush with the jeep, keeping over-all size to an absolute minimum. The only internal supports are four wooden uprights nailed to the bottom of the box on which the axle hubs rest; these do not add appreciably to the depth of the container. Four metal tie-down straps anchor the vehicle to the base.

Monorail Feeds to Packing Line

Willys is believed to have the fastest automotive boxing line in the country (up to 50 per hour), and this may be attributed not only to simplified container design but to highly efficient packing operations as well. The jeep export packing line is one of several in the department, with others designed for packing replacement parts. It consists of alternating gravity roller and floor chain conveyors arranged in parallel. The powered carriers are 220 ft. long, while gravity lines, located at the outsides and between the chains, extend an additional 20 ft. at each end. The total width of the line is 130 ins. The speed of the powered conveyors ranges from three to eight ft. per minute.

Above the feed end is an oval monorail track which is used to spot the vehicles on the line. A second track starts at right angles to the line, runs about 50 ft. parallel and directly above it, then travels at right angles again. It feeds box sides to operators. A gravity roller section, parallel to the packing conveyors, delivers box sides to the monorail. Another continuous overhead track is located in this area for bringing tops to the packers. About 20 ft. from the end of the packing conveyor, a small section of track removes the boxed vehicles if for some reason they are not shipped immediately, the normal procedure. The layout on these pages details the location of the equipment.

Over the take-away end, a closed monorail circuit, about 500 ft. in length, extends through a door in the wall over a double-track rail siding, then circles back into the department. Delivering the boxed jeeps directly from this third-floor department has eliminated much inter-floor transportation within the plant and transportation and loading time has been minimized.

Preparing for Packing

After testing, the jeeps are driven to the packing department where gas and oil are vacuum drained. The vehicles are then propelled about 20 ft. to a point beneath the monorail. The steering wheel is removed, the open shaft covered with industrial tape which also secures the gas tank cap, and a cork

IDEA conveyor

A department devoted to new methods that were developed for improved material handling in your plant. Send us your ideas which have been adapted to actual operations. Ten Dollars will be paid for each one accepted. Include a sketch or photo, or both.

Efficient Packing Facilitates Assembly

By E. C. STURGES
Control Divisions
General Electric Company
Schenectady, New York

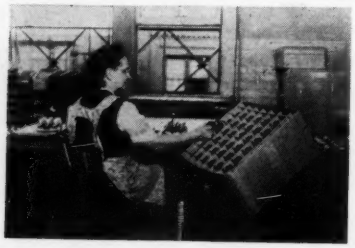
RISING production costs have given increased importance to receiving bulk material in a condition so that the handling before processing is reduced to a minimum.

In the Control Divisions, for example, a handle assembly is used which was formerly wrapped and packed by the vendor in cartons of 20. When they were received, each assembly was unpacked and placed in a tray, and the tray then taken to the assembly bench.

Another part was received packed in individual containers.

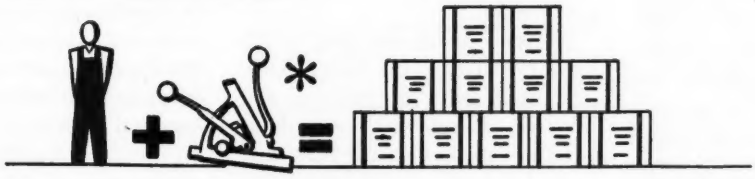
Through the cooperation of the shipping division, an egg-crate container was designed that would enable the vendor to pack and ship 72 assemblies of the first type in each carton, and 16 of the second type to a single package. This method of packing eliminates unpacking, unwrapping, and removing excess paper and cartons from stock or assembly areas.

Not only was this a saving in unpacking and removing excess cartons from the floor, as well as a reduction in floor space in the stock area, but production was expedited as well. Cartons are now taken directly to the assembly benches, where they are placed on an angle standard close to the operator's work, so that the parts can be selected as needed, without unpacking them first.

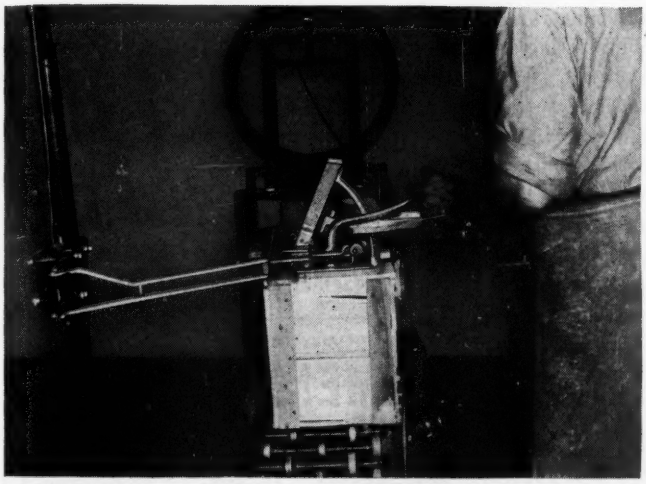


AT LEFT—OLD-STYLE packing: too much one-piece handling. ABOVE—NEW PACK: no unwrapping job prior to assembly.

300 MORE CASES PACKED PER DAY



...AT 1/3 LOWER COST



One manufacturer found that one man *plus* the Stanley *ACE STRAPPING TOOL not only upped the packing rate from 250 packages strapped a day to 550—but also freed two other employees formerly needed in shipping room for more productive work.

You can't argue with facts and figures like these from manufacturers of hundreds of different products, *proving* the Stanley Steel Strapping System slashes shipping expense to the bone. With rising costs plus growing resistance to higher prices, Stanley Steel Strapping is more than ever a factor *you* can't afford to ignore.

Stanley Steel Strapping is quick and easy to apply—gives greater protection to goods in transit—makes important savings in man-hours and materials. Get the details on the savings it can make in your shipping room. Write for facts, or have a Stanley representative call now! The Stanley Works, Steel Strapping Division, 203 Lake St., New Britain, Conn.

STEEL STRAPPING AND CAR BANDING SYSTEMS

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is inserted in the exhaust pipe.

The front end of the jeep is raised by a 1000-lb. electric hoist, after which a two-leg chain sling, suspended from a one-ton chain hoist, is hooked to the front bumper. The electric hoist also picks up the back end which is secured by a second chain hoist equipped with an inverted V-shaped double-pronged hook. The latter is inserted into openings in the back of the jeep. Of interest is a bar which joins the two chain hoists. This bar is the length of a jeep and keeps both carriers spaced apart the required distance while working in unison.

Steel strapping is looped through openings at the back end of the vehicle, on both sides and behind the instrument panel. The loop is made as small as possible and one end crimped to the attached length. (The opposing ends are later joined, as explained below.)

Metal tie-down straps are bolted to the bottom rear of the jeep body and two more added to the front bumper.

An operator moves the jeep, via the monorail, to a point over the box base spotted on the conveyor line. The load is placed so that the axle hubs fit into the wooden uprights. The tie-down straps are then bolted.

All space inside the jeep is utilized for placing the components. The front seats are removed and inverted. Rims, with or without tires, are stacked on the back seat and the floor; one is sometimes placed between the front bumper and radiator. Seat cushions, wrapped in tar-lined kraft paper, the windshield, steering wheel and step are laid on top. Waxed kraft paper is placed over the components and all are steel-strapped by crimping opposing lengths. In some instances, fibreboard is used to protect unwrapped painted parts.

The arrangement of the components and accessories conforms with the contour of the jeep. Since all are in the same box as the vehicle, no time is lost at destination waiting for additional parts to arrive in another container.

Company-Designed Grab

The ends and sides are nailed in place as the vehicle moves along. A wooden support is inserted crosswise at the top of the box, as shown. Steel corner bands secure this crosspiece and the ends and sides at the top and bottom.

The final packing operation is nailing the top. The lid is brought to the line by a one-ton electric hoist operating on the monorail and equipped with a load-supporting type of grab which is shown in one of the photos.

The sides, ends and top section are all lined with tar paper. Before the center support is added, a sheet of treated wax paper is laid over the load. While the paper is designed to keep moisture from reaching the contents, the construc-

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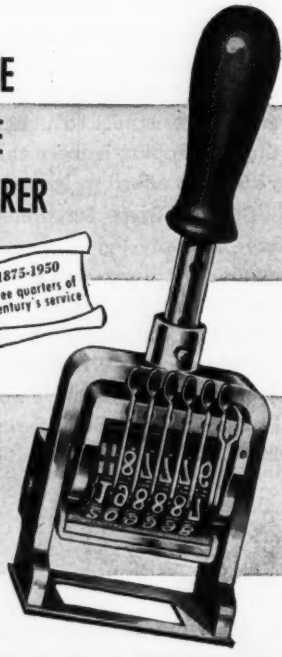
NUMBERER

1875-1950
Three quarters of a century's service



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Heavy duty, fully automatic.
Prints legible numbers and markings on wood, cardboard, canvas, etc.

Write for catalog "E" on complete line

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INCORPORATED
64 WHITE STREET, NEW YORK 13, N. Y.

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HANDLING
SHEET METAL PARTS!

Handle parts and materials faster, *and save space* with Donaldson's versatile TIER TRUCK. REDUCE HANDLING . . . roll parts right next to production machinery or assembly line . . . move them directly from tiered storage to next production operation. Self-aligning baskets . . . stack neatly and quickly to any practical height. Sturdy angle frame. Expanded metal basket permits clear view of contents. Two fixed and one swiveling caster for maneuverability.

WRITE FOR LITERATURE

DONALDSON COMPANY Inc.
666 Pelham Blvd. St. Paul 4, Minnesota

tion of the box prevents all but unusually heavy amounts of water from entering. There is no protective paper in the bottom, which allows air to reach the vehicle to prevent molding.

Shipping From the Third Floor

At the end of the line, the boxed models are picked up by a cab-operated monorail hoist which is equipped with two standard box grabs. This carrier, one of four operating in the department, has a capacity of 5000 lb. The boxes are carried through a door, over the rail siding, and spotted in either gondola or flat cars. The delivery of the complete package, it will be noted, is done by the simplest method possible. The hoisting unit picks it up at third-floor boxing, then lowers it into the rail car at ground level.

For normal packing output, the cab-operated hoist reverses its route to pick up another load. This entire operation averages one minute. During peak boxing periods, the hoist continues around the closed circuit while a similar carrier picks up another load.

Willys-Overland Motors, Inc., provides a good example of how war-time methods have been successfully carried over into peacetime.

Sales Field . . .

(Continued from page 50)

as; Barton Sales Co., Fort Wayne, Ind. The Barton Co. has also been appointed as distributor for Whiting's overhead crane and monorail systems.

THE Midwest Industrial Truck and Supply Co., 2405 West 51st St., Chicago: this company has taken over the sales of industrial trucks manufactured by the Moto-Truc Co., Cleveland, in the state of Illinois. Midwest Supply is headed by W. Buryl Dalton Sr. who has been with the Kraft Foods Co. for the past 10 years as material handling engineer; Ronald A. Jones who has had 10 years experience in the industrial truck field; and Bruce Dalton who has had factory training and who has been selling Moto-Truc equipment for the past year.

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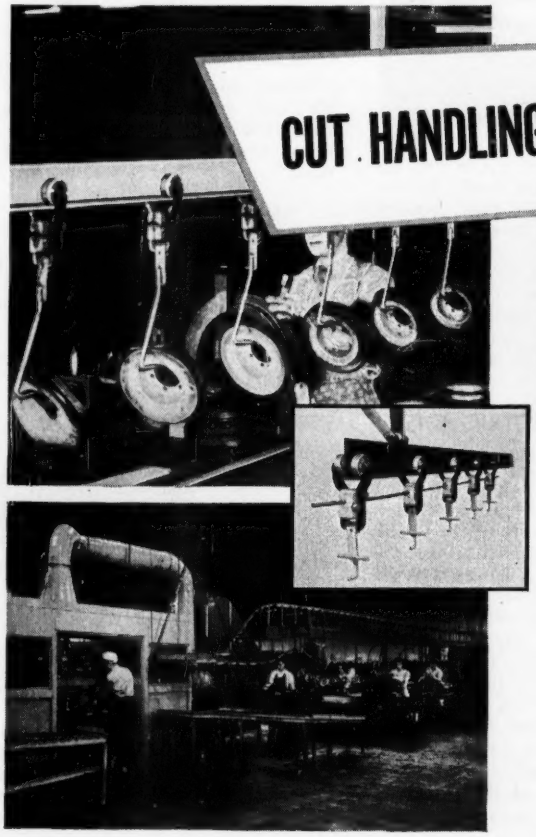

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● Your production can be mechanized with Buschman "Universal" Overhead Trolley Conveyors. Stock units are low in cost, easy to install, floor or ceiling supported, easy to change when necessary.

For light and medium loads (up to 160 lbs. per trolley) Buschman Cable Conveyors cost less than comparable types. A Buschman Representative will gladly show you how these stock units can be "tailored" to your needs and cut handling costs. For details write for Bulletin 41.

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4450 Clifton Ave. Cincinnati 32, Ohio

*Users report savings up to 30%

NEW PRODUCTS

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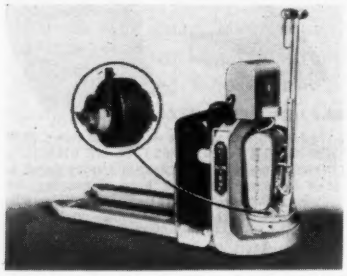
PALLET TRUCK

NP1—A shorter, lighter 12- or 18-volt pallet truck, and an automotive-type, internal expanding brake are now being made standard on all models manufactured by Moto-Truc Co. The brake is mounted on the side of the drive wheel as an integral part. Two internal expanding, self-synchronizing, vulcanize-lined brake shoes inside a cast drum



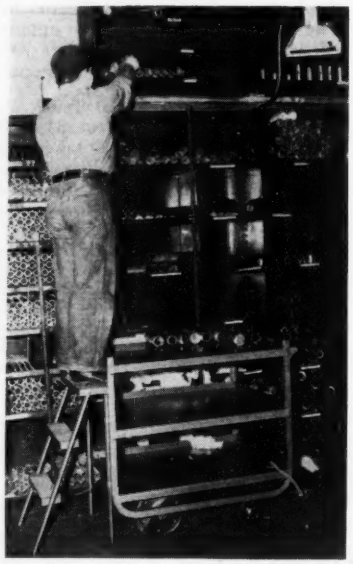
provide smooth, positive brake action under all load and floor conditions. According to the release, operating safety is increased by eliminating excessive strain and wear on chains and shafts. Another feature of the truck is its shorter over-all length, only 23¾" longer than the load, designed for operating in confined areas. The roller-type handle controls two speeds forward and two speeds reverse. Electric pump is located on top of truck for accessibility. Additional features include an all-welded frame, motor guard for protection from operator's feet, and "dead man" controls.

ELEVATOR BACKSTOP

NP2—A backstop which automatically prevents the "backing up" or "running away" of inclined conveyors, bucket elevators and similar equipment has been produced by The American Pulley Co. The standard stock backstop, taper-bushed to shaft size, is a ratchet-type device which automatically operates when power interruption, overload cut-out, or failure of the prime mover occurs. It can be mounted in any position on the head shafts of conveyors or elevators. As long as the shaft is turning in the proper direction, the pawl is disengaged from the ratchet, so that there is no drag, no vibration and no noise. Immediately upon reversal, the pawl automatically engages the ratchet, locks the shaft in place and holds it in position until forward power is again applied, at which time the pawl pulls out of the ratchet teeth.

"LAD-O-TRUCK"

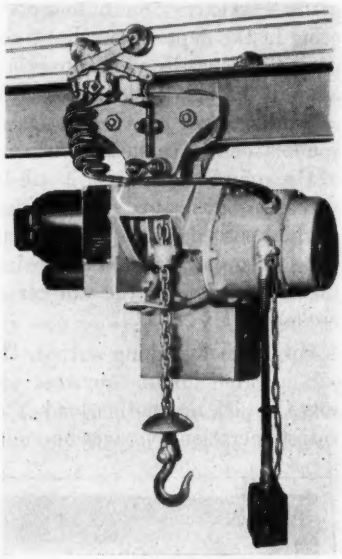
NP3—Nutting Truck and Caster Co. has developed a stock cart with a built-in ladder, designed for pulling stock



from high bins. When not in use, the ladder folds against the truck. Rubber tipped legs contact the floor, braking the truck. The model shown has a shelf size of 25" x 24½"; shelf clearance 10½"; overall height 36". The main rubber-tired wheels are 10" in diameter, caster wheels 5". The ladder is 18" wide with three steps 10" apart. Use the postcard bound into this issue for more information.

CHAIN-TYPE ELECTRIC HOIST

NP4—Lifting speeds up to 41 ft. per minute, a lower as well as an upper limit stop, and a wide "pick-up" angle, are three of the features of the Chain-Type Load King Electric Hoist announced by The Yale & Towne Mfg. Co. It is available with load capacities of 500, 1000, and 1500 lb. Standard models lift loads through any height up to 40 ft. Link chain, over an electrically driven sheave, supports the load. This is said to facilitate lifting of extra long lengths since wound-up chain collects in a metal container as the hook raises. The single-strand load chain securely engages six pockets of the sheave to move and hold heavy loads with a minimum of chain friction. The hoist hook can "reach out" as far as 30 degrees from the vertical to pick up loads. The



wide pick-up angle and the flexibility of the load chain means less time and power consumed in "inching" the hook up or down for close "spotting", it is said.

INVERTER ATTACHMENT

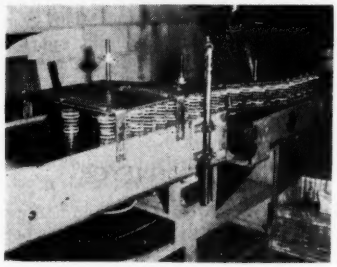
NP5—One man is said to be able to invert more than 16,000 cartons of canned milk in an eight-hour day with the new Milk Inverter Device engineered by

Towmotor Corp. In a single operation the device lifts, turns and deposits a load of 110 cartons of baby-size cans. Revolving 360 degrees in either direction, it consists of two forks fixed at

the top and two at the bottom of a specially designed back plate on the company's standard truck carriage. A second plate mounted on one side holds the cases safely in position during turning. To invert cartons of milk, an empty pallet is placed on the upper pair of forks. The lower forks are then inserted under the pallet which supports the load. The multi-carton unit can then be picked up and rotated 180 degrees, depositing the cartons on the original upper pallet, and leaving the original lower pallet on the upper forks ready for the next load to be inverted.

STRAIGHTLINE UNSCRAMBLING TABLES

NP6—Tumblers and other tapered containers are unscrambled at high speeds on a Straightline Unscrambling Table manufactured by the Island Equipment Corp. A steel plate just above the moving belts is designed to prevent the con-



tainers from tipping or surging upwards away from the belts when crowded. The plate is adjustable to various heights of containers. The unscrambler is designed to handle round, oval, flasks and irregular shaped containers. Use the enclosed mailing card for further information.

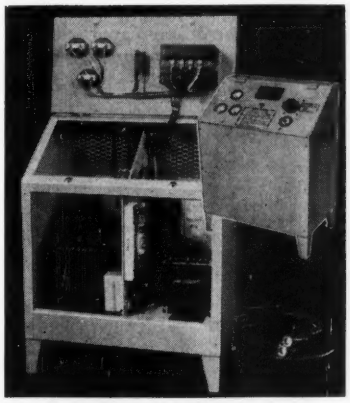
SAFETY FEEDER

NP7—The Pres-Vac Safety Feeder, developed by F. J. Littell Machine Co., is a device that produces a vacuum by passing compressed air through a venturi. It is designed to hand-feed small parts into a press so that the operator's

hands are not in the danger area. Faster production is thus said to be possible because of the ease and safety of feeding. For more details, mail the postcard bound into this issue.

BATTERY CHARGER

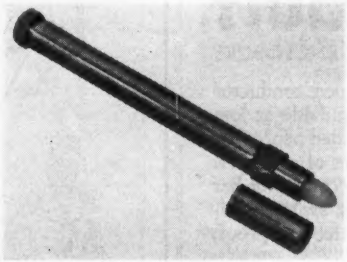
NP8—A selenium rectifier battery charger with Duplex control has been perfected by the Automatic Transport-



ation Co. According to the release, the charger offers the following features: Automatically controls the charge from start to finish of the cycle, eliminating the possibility of human error; prevents overcharging, adding to battery life; combines simplicity of operation, installation, and maintenance with ruggedness; increases output, decreases input. By increasing the number of plates in the stack, capacity was raised from 50 to 55 amperes. It is further stated that it will charge a 12-volt 11-plate battery in a maximum of eight hours, or a six cell 13-plate battery in eight to nine hours. Duplex control governs two clocks, synchronized for accuracy. One clock limits the charging period to nine hours. The other goes to work once voltage is up, and it is time for shifting from the initial high charging rate to the finishing rate. The finishing rate continues for three hours after voltage reaches the high point.

FELT TIP MARKER

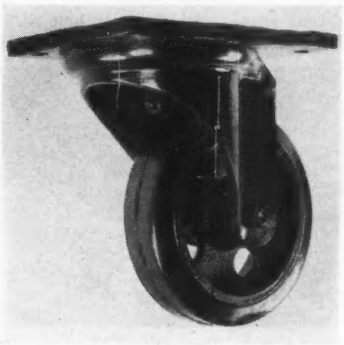
NP9—Ideal Stencil Machine Co. has added a Felt Tip Marker to its line of stencil machines, gummed tape sealing machines, stencil brush and stencil supplies. The marker is the fountain type



and is used for all free hand marking in shipping departments. Made of aluminum and brass, it is 7½" long and weighs 2¾ oz. Ink is fed through a pressure-sensitive tip which controls the flow of ink from the fountain. A hexagonal cap closes the ink supply and keeps the marker from rolling when placed on a slope.

TRAILER CASTERS

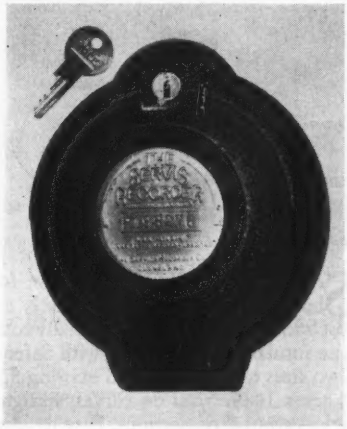
NP10—Albion Industries has announced a trailer caster available with 10" and 12" diameter wheels. Specifications are: 9½" x 11¼" all-steel ⅝" thick top plate with 7" diameter ball race; ⅝" chrome steel balls; 1" king bolt with castellated nut and cotter key;



yoke or horn has dirt and dust seal. Other features include thrust bearing; ¾" axle; hardened and ground spanner bushing; 1" bearing. Casters are available with plastic, rubber, and semi-steel wheels. Rigid casters of all steel are also offered.

TRUCK TIMER

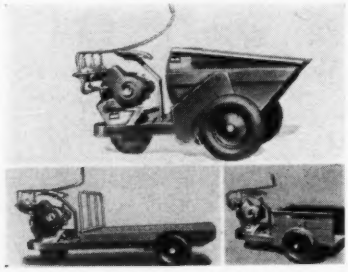
NP11—A means of controlling and computing the time element in truck operation is offered by the Service Recorder Co. Called the Servis Recorder, it consists of a pendulum-operated stylus and a spring-driven clock which revolves a circular graph. The side-to-side movement of a moving truck, through the pendulum, activates the stylus which records a wide line on the chart when the vehicle is moving, a



thin line when it is stationary. The chart, being marked off in hours and minutes, shows exactly when the truck is moving. The device is designed to check delays, reduce loading time and check overtime and night work. Truck expenses may be also distributed and delivery routes more efficiently laid out. The timer may also be installed on machines and other equipment.

"POWER-CART"

NP12—Three interchangeable trays are featured in the re-designed Gar-Bro Power-Cart which was originally manufactured for material handling in the heavy construction industry. It is available from Gar-Bro Mfg. Co. It has a load capacity of 2000 lb. or 14-cu.-ft. of bulk material, travels at speeds up to 10 miles per hour and climbs 20 percent grades with capacity load, it is said. The bulk handling tray is balanced on trunnions at each side. Dumping or pouring is controlled by the operator. A trip-latch releases the tray and a tilt-brake holds it at any pouring angle. According to the release, bulk tray, box or platform tray can be interchanged in less than five minutes. Steering and power control are by tiller. This tiller when held in a downward position engages the seven H.P., four-cycle engine to go forward, or when held in an upward position to reverse. Construction is of electric welded steel plate. Overall length is 85", width 39½" and height 50". Weight is approximately 690 lbs.

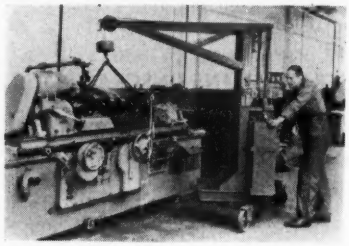


HEAD CUTTER FOR STEEL DRUMS

NP13—A Head Cutter that cuts the head of any size drum in approximately one minute has been introduced by Michael A. Schinker Mfg. Co. Manually operated, it will work on empty or filled drums, from 10 to 55 gallon sizes and 20 to 16 gauge stock. It sets on the top of the container. Turning of the crank completes the circle. The head drops into the drum while the cutter remains on the edge. The cut leaves no ragged edges and the metal is flanged slightly inward. The cutter is portable and weighs 36 lb. According to the release, it may be used 1000 times before resharpening.

REVOLVING PORTABLE CRANE

NP14—Shown is a portable crane, manufactured by Barrett-Cravens Co. It is designed to reach over obstacles to pick up such loads as dies, cases, barrels, castings, assemblies and other heavy bulky units. Wheels are equipped with anti-friction bearings. The crane may be hinged or telescopic, operated manually or electrically. Capacities range from 500 to 5000 lb. Circle number NP14 on the postcard in this issue for more details.



BELT CONVEYOR

NP15—A lightweight aluminum Stevedore, Jr. power belt conveyor has been

CON-L-DUIT
APPROVED SAFETY ENCLOSURE

SAFETY IS CHEAP! Protection from open conductor bars on cranes and monorails is now available at low cost with CON-L-DUIT, a specially compounded neoprene-base insulation. It complies with Safety Codes of all States. Two sizes to fit all new and existing figure-8 conductor bar systems. Is practical on curves, straight runs, switches, interlocks and drop sections. Easy to install, safe, fool-proof, and economical.

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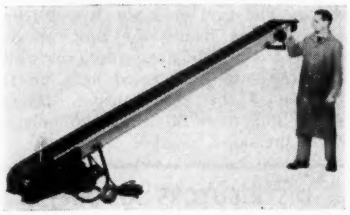
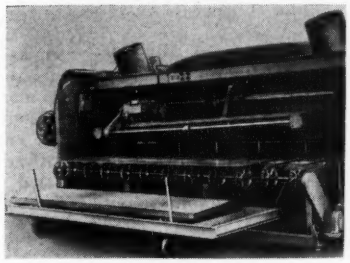
announced by The Rapids-Standard Co. Averaging less than 350 lb. in weight, the two-wheel power booster and stacker is rolled into position. It is furnished in 10- and 16-in. belt widths and five standard lengths from 11 to 21 ft. Its



box channel slider bed is formed of heat-treated aluminum alloy ⅛-in. thick, with steel trussing for added rigidity on 18½- and 21-ft. models. The unit operates horizontally, or at any angle up to 40 degrees, depending upon belt surfacing and materials conveyed. Two-way belt travel permits use in both loading and unloading operations.

LIFTVEYOR

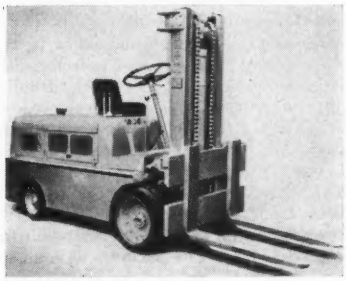
NP16—The Liftveyor support, a pneumatically-operated series of plungers which rise to the table height of the shear, is manufactured by Fried Steel Equipment Mfg. Corp. The plungers are actuated by a treadle that is placed beneath the shear treadle. When shearing action begins, the plungers drop below the level of the revolving belts, which carry the sheared material away. The return of the plungers to the support position is delayed to permit the sheet to pass over. The ball supports on top of the plungers can be turned at 90-degree angles for wide shearing. The plungers will support a sheet as narrow as 8 in., and by moving the adjustable



carriage back, they will support any width sheet that the back-gauge will accommodate. By locking the plungers in the down position, the back-gauge can be brought as close to the shear as possible. The belts alone, then, can be used to carry the cut strips away. They do not sag appreciably under load. This unit is equipped with retractable casters, so that a few strokes of the hydraulic cylinder will lower the casters, making it fully portable. Turning the release valve on the cylinder lowers the entire unit to rest on leveling bolt. Overall length of the Liftveyor is 66 ins., width to suit the shear. A ½ HP air compressor will furnish sufficient air to operate the unit.

10,000-LB. FORK TRUCK

NP17—A 10,000-lb. capacity fork-lift truck, gasoline powered and equipped with the Dynatork Drive, has been added to the line of the Industrial Truck Division of Clark Equipment



Co. The new model is known as the utilitruc-100. The Dynatork Drive will be standard equipment on the truck, and the only type of drive available. It transmits engine power through a magnetic field, across an air gap, eliminating need for any type of friction clutch. Features include pivoted steering-axle assembly, which increases stability by maintaining all four wheels in constant contact with the road surface; and a 6-cylinder industrial-type engine of 209 cu. in. displacement, developing 50 brake horsepower at 1800 rpm. Specifications are: overall length, 107 ins.; wheelbase, 66 ins.; overall width, 50½ ins.; outside turning radius

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A full line of wheels for baggage trucks, industrial trailers, floor trucks, mail carts and other portable equipment.
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Don't fish for small parts. The Anchor "piano hinge" Pan Type Conveyors won't lose an item over 5/32" in size. Giving trouble-free operation for chips, scrap, food and in-quench tanks. Built as a single unit in standard widths. Send for Bulletin 36-50.
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Sizes for all Conveyor systems. Shuts off electric motor instantly when conveyor or machine is overloaded — resets automatically. Write for Bulletin 44-51.
ANCHOR STEEL AND CONVEYOR CO.
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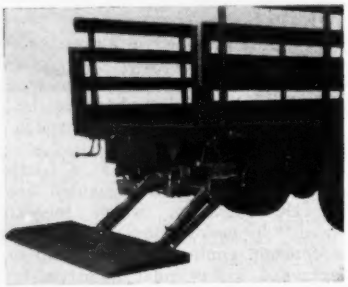
104 ins.; and inside turning radius, 12 ins. The machine turns readily in intersecting aisles of 88-in. width.

ELEVATOR TAILGATE

NP18—An hydraulic elevator tailgate which is installed at the rear of delivery trucks, is being manufactured by Marion Metal Products Co. It is designed to save time and labor in the loading and unloading of merchandise. It lifts, closes and lowers hydraulically—operated by a single lever. It lowers within a few ins. of the ground, and stops and holds at any height desired, as well as locking at truck-bed level. This safety feature prevents the tailgate from dropping accidentally. According to the release, the unit will lift 2000 lb. Features include a non-skid



platform which prevents merchandise from skidding or slipping, and construction which provides even distribution of weight, preventing frame distortion or twisting regardless of where the load is placed. It is further stated that the device fits all new and old model trucks and does not add excessive weight.

GAS-ELECTRIC POWER UNIT

NP19—Ready-Power gas electric power units have been redesigned to reduce maintenance and to provide more economical operation. The Ready-Power Co. has announced that the new features will appear first on a new general purpose unit which is rated at 36-48-60 or 72 volts for use with 4000-lb. fork trucks, 10,000-lb. platform truck and 6000-lb. crane trucks. The new model employs tubular flange type, flexible engine mountings, to eliminate strains being transmitted from the frame of the unit to the engine with resultant breakage and oil leaks, also a flexible oil drain line. Improvements can be adapted to existing Model H units.

Other features include an oiler for the governor which permits cleaning without disassembly; oil filler and breather unit located on the cylinder head where it can be reached easily; AC combination fuel pump and filter; and improved muffler design. The cooling fan, which is in a stationary position, has improved shrouding for quietness and greater efficiency. Fan belt adjustment is accomplished by moving the 6 volt battery charging generator. A water pump is gear driven with larger bearings and improved rotary seal. Distributor drive is incorporated in the water pump drive. The fuel tank which was formerly located inside the unit housing now is a completely separate tank which is fitted into a recessed area on the outside of the unit housing. Overall shape and dimensions of the unit remain the same.

DISTRIBUTORS APPOINTED

THE Chain Belt Co., Milwaukee, has appointed the following firms to handle its equipment. Winn Supply Co., 256 Seventh Ave., San Diego, Cal.; Polson Implement Co., Columbia and Western Ave., Seattle 4, Wash.; Pacific Hardware and Steel Co., Inc., 1344 The Alameda, San Jose, Cal.; and Arkansas Bearing Co., Markham & Rector St., Little Rock, Arkansas.

NELSON Equipment Distributors, 913 Roosevelt Bldg., Indianapolis: the firm has been appointed sales representative for the Automatic Transportation Co., Chicago, according to Elmer F. Twyman, Automatic's general manager. Territory served includes the state of Indiana, except for La Porte, Porter and Lake Counties. Head of the distributing firm is Minton D. Nelson.

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Is Yours a *PECULIAR* Conveying Problem?
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operations in more than one plane or direction • keeping several types of materials segregated • odor—flame—explosion control • cleanliness—sanitation—contamination • accurate volumetric feeding • limited space for clearances and supports. These are only part of 45 "peculiar" conveying problems which are met successfully by the completely engineered Hapman Conveyors.

IS YOUR CONVEYING PROBLEM CONCERNED WITH THE HANDLING OF A MATERIAL RESEMBLING IN WEIGHT, SIZE, DENSITY OR TEXTURE ONE OR MORE OF THE FOLLOWING:

- *Metal chips* • *Powdered coffee* • *Welding flux*
- *Sugar and flour* • *Zinc oxide* • *Filter earth*
- *Slag and foundry sand* • *Ceramic powders*
- *Grinding sludge* • *Ground cork and peanuts*

The above "flowable" products and many others are now being handled successfully by HAPMAN CONVEYORS. The complete list is given in our catalog which shows also the many ways Hapman Conveyors can be used to help solve "peculiar" conveying problems.

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MULTI-PURPOSE DUMPERS for dumping bags, bulk or drums, as well as single-purpose types save handling time and reduce accidents. Dumping heights range from 5 to 12 ft. Special sizes made on order. Have lifting capacity of 500 lbs.; handle up to 100 loads per hr. ½ H.P. motor controlled by push button. Immediate delivery. Write for 8-page catalog.

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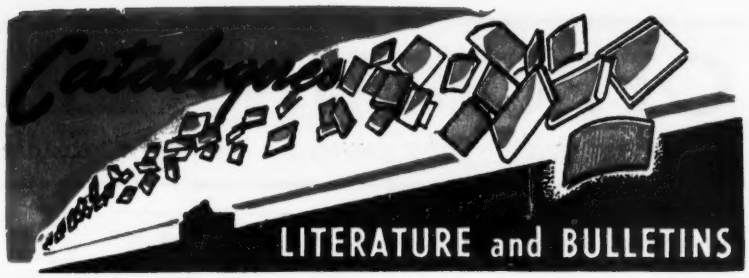

The publications featured on these pages were written by experts. They are FREE publications. To obtain these use the postcard bound into this issue.

25—Conveyor Belting . . . "Installation, Care and Maintenance of Rubber Conveyor Belting" is the title of a booklet issued by the Carlyle Rubber Co. The text covers such topics as receiving and storage of belting, splicing and training of the belt, repairs including the cold patch method and vulcanizing. The publication, in easy-to-read form, is a worthwhile addition to any plant library which has rubber conveyor belting in use within the plant or in the yard. Use the postcard bound into this issue for your copy.

26—Hand Hoists . . . The Wright Hoist Division of American Chain & Cable Co., Inc., has released a six-page, two color folder, DH-164, which describes its line of hand hoists. The lifting units are available with capacities from ½-ton to four tons. The publication contains specifications, action photos, a cross sectional view of the hoist, and operation and construction features. Send for your copy today. Circle No. 26 on the enclosed postcard.

27—Battery-Powered Trucks . . . A 16-page booklet, available from The Electric Industrial Truck Association, contains several articles describing methods used by newspapers and printing plants for handling, storing and shipping paper and printed products. The reports, which discuss the manner in which battery-powered vehicles are used by 11 different mills and plants, are illustrated with photos of different types of trucks engaged in various handling operations.

28—New and Used Equipment . . . An illustrated catalog of new and used material handling equipment is available from the A & A Machinery Corp. Use the self-mailer bound into this issue.

29—Handling in The Bottling Industry . . . The Clark Equipment Co. offers a 32-page survey of bottling plant handling operations. It covers 48 plants ranging in capacity from 1000 to 20,000 cases per day located in various parts of the country. Main purpose of the study was to obtain facts as a basis of evaluating the three principal material handling methods commonly employed in this industry—the skid platform method, the conveyor method and the fork truck-pallet method. Attention is focused on the effect of each method on production, warehousing capacity, distribution costs and sales volume. The publication is generously illustrated with typical floor plans and flow diagrams, table of man-hour requirements and operational photographs.

30—Fork Trucks . . . Two models of a fork truck with a 2000-lb. capacity are the subject of a leaflet issued by The Buda Co. Both models are rated at a 24″ load center which permits handling loads of 2220 lb. at 20″ and 2600 lb. loads at a 15″ load center. Design changes include a new steering axle, new style solid carriage plate, redesigned forged forks, adjustable cushion operator's seat, and larger diameter steering tires. Interchangeable masts are incorporated in both the cushion tire model FA-20-24 and the pneumatic tire model FPA-20-24. The standard lift is 85″; collapsed height of mast is 64½″. For further information use the postcard.

31—Tire & Wheel Analysis Service . . . A tire and wheel analysis service that may save operators of material handling vehicles up to 50 per cent of their industrial tire and wheel costs has been developed by the B. F. Goodrich Co. The company's tire engineers visit plants and make surveys of handling operations. They cover types of vehicles used, operating conditions, loads, wheel sizes and other data which determine the proper type and size tires and wheels for these vehicles. Plant operators have a choice of 14 different types of tires for material handling vehicles, including pneumatic tires, puncture-sealing inner tubes, solids of pressed-on and vulcanized-on types and zero pressure tires. For this free service, circle No. 31 on the self-mailer in this issue.

32—Electric Stairways . . . The Westinghouse Electric Corp. will send you a 48-page booklet on the who, what and how of its electric stairways. This profusely illustrated, four-color publication contains many diagrams of typical installations and various types of arrangements. All components are indicated. Methods of cutting through existing walls for most efficient installation are indicated. A worthwhile publication in easy-to-read form; op-

Weld-Bilt

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Your truckers move more materials, easier, faster, and finish the day happier, with less fatigue—with WELD-BILT Hydraulic Lift Trucks. That's because WELD-BILT trucks move with less effort, are simpler to operate, have many features that take the wear and tear out of trucking—and truckers.

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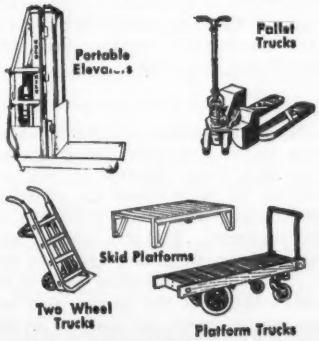

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erating and construction features. For your free copy, use the postcard in this issue.

33—Conveyors . . . A 24-page bulletin, offered by the Standard Conveyor Co., gives detailed data on its roller, belt and wheel conveyors designed for elevating, lowering and horizontal transportation of sacks, cartons, boxes and bundles. Photos show details of construction and application views. Specifications and selection of various types are included. Diagrams detail applications, methods of arrangement; more than a dozen charts and tables.

34—Low-Speed Synchronous Motors... An eight-page, two-color bulletin on low-speed synchronous motors has been issued by the General Electric Co. Known as GEA-5382, it illustrates typical installation of these high-power factor, constant-speed drives, describes their construction features and indicates mechanical modifications and performance data. Covered are Type TS (3 phase) and Type QS (2 phase) motors in the 6000 series with frame sizes of 6184 and larger, and ratings from 20 to 15,000 HP.

35—Storage Battery Maintenance . . . The Gould Storage Battery Corp. has released a revised second edition of its 40-page pocket-size handbook of technical instructions and engineering data on the care of motive-power storage batteries. The revised edition contains a new four-page section on the theory of the lead-acid battery. In this section are four captioned line drawings which explain battery charging and discharging. Four other sections are entitled "Care and Operation", "Maintenance and Repairs", "Parts", and "Technical Data". The Care and Operations section gives instructions for receiving, placing in service, operating, maintaining and charging the battery. Profusely illustrated with charts, diagrams and photographs. A worthwhile publication for all plants using lead-acid batteries in their industrial trucks. Mail the postcard for your copy.

36—Speed Reducer . . . An unusual die-cut folder has been issued by the Dodge Mfg. Corp. Known as Bulletin A-470, its 16 pages cover the selection of the correct size of its Torque-Arm Speed Reducer. Full-size photos are augmented by simplified selection tables. The only information said to be required to select the proper size reducer for a given application is the horsepower required and the speed and size of the shaft to be driven. From the tables, a plant engineer can determine the size of V-belts and sheaves required for the drives. Operating and construction features, explanatory text, specifications, photos and charts are also included.

OPPORTUNITIES

Men wanted Jobs wanted Lines available

Rates: for "Positions Wanted" $4.00 minimum, limit 25 words. For all other classifications $4.50 minimum for 25 words, each additional word 15c; boldface type for all capitals, $7.50 minimum for 25 words, each additional word 20c; limit 50 words. Box address counts as five words. All insertions are payable in advance.

These classfied columns are not intended for the advertising of new products by manufacturers, their representatives, or their distributors. These columns are limited to Help Wanted or Positions Wanted advertisements, and for the offering of used equipment by the users of such equipment.

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500 Used All Steel Shop Trucks, Box measures 42" long x 26" wide x 21" deep, made of 13 gauge sheet, and is elevated on structural steel, overall height 41", rolls on two 5" and two 6" roller bearing swivel casters. Weight approx. 260 lbs. each. Soss Mfg. Co., P.O. Box 38—Harper Station, Detroit 13, Michigan. Phone—Lakeview 1-5100.

FOR SALE—SURPLUS—RICHARD WILCOX 24' and 34' Tubular Track and Trolley Conveyors. CRESCENT 3000# LDLE Platform Elevating Truck. CLARK for Gas Truck, 6000#, 6' lift. FORDSON Tractor — safety hitch. FLAT TRUCK, 36"x72". JACK & HEINTZ PRECISION INDUSTRIES, Inc., 17600 Broadway, Cleveland, Ohio. Phone BRoadway 1-1000,

FOR SALE

Reconditioned Clark tractor, mill 44. Pneumatic tires. 4000 draw bar pull. For Sale or Trade. Northwest Industrial Truck Service, 5611 N. Waveland Ave., Chicago, Ill.

37—Magnetic Scale Models . . . Magnetic scale models of machinery, handling equipment, operators, etc. are described in a folder available from the Magne-Plastic Corp. The plant layout is drawn on sensitized plastic. Permanent magnets are inserted in these plastic reproductions to make the templet. Scale models are placed against the layout to show exact position of the various equipment. Because of the magnet, the layout may be hung vertically for minimum area. It is designed for use in planning new plants or departments or for quick reference of present installations.

FOR SALE

Clark Truclift Platform Lift—6000#. A-14-V Hebard Shop Mule. Clarkat Shop Mule. A-14 Hebard Mule. Ford Tow Motor w/Cab. YATES MACHINE WORKS, Rochester, Michigan.

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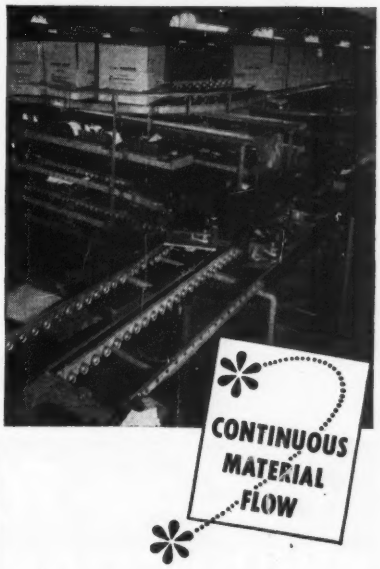

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Literature Available From Advertisers In This Issue

(Check corresponding numbers on the enclosed card for the free literature listed below).

A-1. UNION METAL MFG. CO. Information will be sent on its line of drop-bottom dump boxes. Use the postcard in this issue.

A-2. GOODYEAR TIRE & RUBBER CO. is offering free recommendations by its trained technical experts. Circle A-2 on the postcard.

A-3. YALE & TOWNE MFG. CO. Publications are available covering its line of industrial trucks, scales and hoists.

A-4. COLES CRANES, INC. This company will send information on its line of tire-mounted cranes; also name of the nearest dealer.

A-5. TRUCSON STEEL CO. An illustrated catalog details a line of steel boxes and skids. Use the postcard in this issue.

A-6. JOHN A. ROEBLING'S SONS. A descriptive folder gives data on slings with the tapered sleeve splice. "The Sling Data Book" is also offered.

A-7. RAPIDS-STANDARD CO., INC. "Rapistan Material Flow at Work" describes conveyors, hand and floor trucks, also casters.

A-8. AMERICAN MONORAIL CO. Bulletin MF-1 illustrates and describes applicatiions of cranes with articulated trolleys.

A-9. PALMER-SHILE CO. is offering information on its steel stacking boxes, platform boxes, steel platform and skid boxes.

A-10. TOWMOTOR CORP. will send "Handling Materials Illustrated", which describes many fork truck applications. Circle A-10 on the postcard.

A-11. BRUMMELER STEEL PRODUCTS CORP. Literature describes parts boxes, tiering racks, cooling boxes, pallets and dump hoppers.

A-12. THOMAS A. EDISON, INC. is offering booklet SB 2039 on the operation of battery-powered fork trucks. Mail the postcard.

A-13. AMERICAN PALLET CORP. will send an illustrated catalog on its line of pallets. Mail the postcard for your copy.

A-14. DETROIT HOIST & MACHINE CO. Bulletin 810 contains operating information on the company's overhead tractor.

A-15. SILENT HOIST & CRANE CO. Bulletin No. 75 illustrates and describes its heavy-duty fork trucks with five, 7½ and 10-ton capacities.

A-16. ROLOCK INC. This company is offering Folder L on its line of carriers for handling tote boxes. Use the postcard.

A-17. WISCONSIN MOTOR CORP. Publications contain valuable information on its line of air-cooled, four-cylinder engines.

A-18. SISALKRAFT CO. will send details on the Fibreen method of unitized loading, also a sample of Fibreen waterproof paper.

A-19. U.S. RUBBER CO. Publications illustrate and describe light-weight tote boxes made of plastic. Mail the postcard for complete information.

A-20. WM. A. FORCE AND CO. Highly informative publications detail its line of container marking equipment. Circle A-20 on the postcard.

A-21. SAMUEL OLSON MFG. CO., INC. is offering information on its "custom-tailored" conveyor systems. Use the postcard in this issue.

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